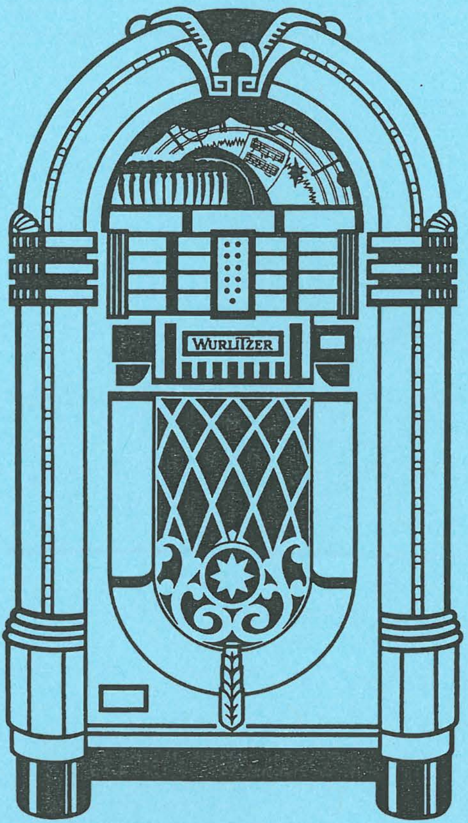
2

AMR NO. R-583

WURLITZER

One More Time



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OWNERS MANUAL

OWNERS MANUAL
One More Time

Introduction

Welcome to the sound of Wurlitzer Music. The Wurlitzer 1015" One More Time" jukebox is a state of the art Music Machine. It puts out the highest quality sound attainable. The "One More Time" is an excellent replica of the most popular jukebox ever built. The original Wurlitzer 1015 was introduced in 1947 and sold approximately 56,000 units in the United States. The "OMT" is solid state and computer driven. It has 200 watts of power, six speakers, and many exciting features.

The following information will give the owner of the "OMT" descriptions of the compontents, their functions and adjustments. A Trouble Shooting Chart, Parts List, and Schematic are also included.

The Wurlitzer "OMT" will become a collectors item in the near future. The "OMT" gives its` owner the best of the past, with its` nostalgic features and the best of today with its` 80`s technology.
It`s built to last, so play your favorites as often as you like.

Enjoy the great sound of Wurlitzer.

WURLITZER
Deutsche Wurlitzer GmbH

Table of contents

Page:

CHAPTER I. SET UP TO PLAY
  a. Open jukebox 1
  b. Remove shipping bolts 1
  c. Remove tone arm strap 1
  d. Insert records and title strips 1

CHAPTER II. COMPONENT FUNCTIONS AND ADJUSTMENT
1. Computer 2
  a) Service program 2-4
  b) Free play 5
  c) Play stimulator etc. 5
  d) Coin and credit programming 6
  e) Diagram - plug description 7

2. Amplifier 8
  a) Volume control 8
  b) Bass and treble 8
  c) Stereo / 2 Channel switch 9
  d) Fuses 9

3. Mechanism 10
  a) Record carrier 10
  b) Gear box, motor and linkages 10
  c) Gripper arm 10
  d) Tone arm and turntable 10

4. Power, lights and bubble tubes 10
  a) Main power 10
  b) Fluorescent lights 10
  c) Rotating color cylinders 10
  d) Bubble tubes 10

CHAPTER III. ACCESSORIES
  a) Remote volume control - infra red 11
  b) Speakers plug and cable 11
  c) Microphone Kit 12
  d) Background music adapter 13
  e) Bill acceptor 14

CHAPTER IV. TROUBLE SHOOTING CHART 13-30

CHAPTER V. SCHEMATICS
  Amplifier 33
  List of electronic parts 34
  Selection and Credit Computer 35
  Functional schematic chassis 37
  Wiring Diagram 39
  Interface bubble tubes 40
  Interface for MMS 111 40
  Power supply and ballast 41
  Interface for MMS 130 42
  Bill acceptor VFM 3 43-45

CHAPTER VI. SPARE PARTS LIST

Front view 47-48
Front view (complement) 49-50
Front view - open 51-52
Inner door 53-54
Kit note acceptor 55
Turntable unit 56
Gripper arm group 57-58
Gear and cam group 59-60
Tone arm group 61-62
Record carrier 63-64
Amplifier 65-66
Amplifier p.-c. board 67-68
Computer parts 69-70

CHAPTER VII. CHANGING FLUORESCENT AND BUBBLE TUBES

a) Changing fluorescent tube 71
b) Changing vertical fluorescent tube 72-74
c) Changing of side mounted bubble tubes 75
d) Changing of curred bubble tubes 76-77

CHAPTER I

Set-up to play

The Wurlitzer "One More Time" jukebox comes from the factory basically ready to play. There are several tasks to perform in order to insure proper operation and best sound:

a. OPEN JUKEBOX - Apply slight pressure against the door while turning the key. The lock is spring loaded so the slight pressure against the door allows the key to turn easily.

b. SHIPPING BOLTS - Remove the shipping bolts from the mechanism platform. There are two, one in the back right corner near the base of the tone arm, the other is in the front left corner near the record carrier.
These bolts secure the platform during shipping. Removing these bolts completely allows the platform to float producing better sound.

c. TONE ARM STRAP - Release the tie-down strap located at the base of the tone arm. This strap secures the tone arm during shipping. Check the cartridge and needle to insure proper position in the tone arm.

d. RECORDS AND TITLE STRIPS - place the records in the record carrier and the title strips into the corresponding numerical slots in the title strip holder. The holder can be removed completely from the machine to allow better access by pushing the two locking springs slightly inwards. To turn the record carrier, operate the lever marked "rotate carrier". The record carrier can be rotated in steps to achieve the best position for loading. You can step up credits by pushing the credit button located inside to the right of the coin slot. There must be credits showing on the Digital Display in order for a proper selection to be played. Other options for play will be addressed in CHAPTER II. eg: (free play, play stimulation, etc).
You should now be ready to enter a selection.

Note: Save the removed shipping bolts and tone arm strap. You may need them should you decide to move your machine to another location. The "OMT" should never be moved, (a significant distance), without the shipping bolts and tone arm strap secured. Records should also be removed from the carrier while being moved.

Attention!

Some parts of the electrical circuitary are connected to the power line (power transformer, fluorescent tube, ballast and accociated wiring).

Never attempt any intervention to these parts unless qualified.

CHAPTER II
Component functions and adjustments

1. Computer
   The selection and credit computer is the brain of the Wurlitzer 1015 ("OMT") jukebox. It directs the mechanism, by electronic impulses to perform at the appropriate time. There are several optional programs and programming features which can be very useful:

   a. Service Program - this program allows the "OMT" owner to retrieve various pieces of information as well as concluding certain service checks on the mechanism. All programs are communicated to the computer through the same button panel used to make title selections.

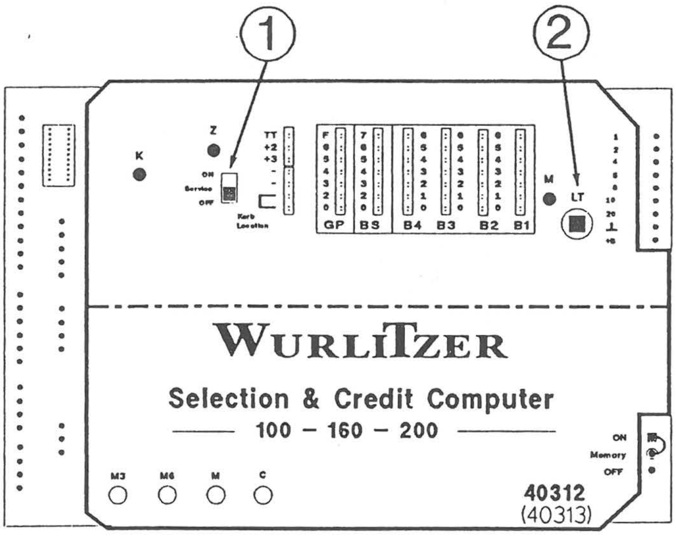
   b. Free play - this allows free selection of multiple titles.

   c. Play stimulator - plays automatically a record every 1 to 98 minutes.

   Start of Service Program

   a. Set switch "Service" (1) to ON.

   b. Press "LT" button (2) once.


1
2
K
Z
ON
Service
OFF
TT
+2
+3
Korb
Location
GP
BS
B4
B3
B2
B1
M
LT
WURLITZER
Selection & Credit Computer
100 – 160 – 200
ON
Memory
OFF
M3
M6
M
C
40312
(40313)

Attention

A toggle switch marked Gripper motor (in some machines marked Service) is located on the main chassis. It allows you to interrupt the gear motor during adjustment work on the changer mechanism. It is not to be confused with the slide switch service on the computer. The toggle switch must always be "ON" during machine operation.

Button 0 - least popular titles (flops)

Indicates the number of times the record side was played. Pressing 0 again shows the record with second lowest number of plays. Press 0 again shows the third lowest and so on.

Press RESET to terminate the "Flop" call.

Button 1 - Top tunes

Shows the tune which was played most frequently followed by the number of plays (maximum 99). If one tune was played more often than 99 times, the counter remains in this position.
Pressing 1 again, the number two top tune is shown, press again for number three etc.

Press RESET to terminate the "Top Tunes" call.

Button 2 - cash box contents

Shows the cash box contents in basic units; basic units being the value of the lowest coin (25 cents).

Example: 0 4 5 = 45 x 25 ct = 11.25 dollar

Press RESET to terminate the "cash box contents" call.

Button 3 -"clear memory"

Press and hold Button "3", then press the RESET button. All counters are reset to zero.

Button 4 - Display check and program number version

1. Display check - Press Button 4. The digital display automatically indicates the number 8 with all three digits, successively "Record Playing", "Hit of the House", "Error", and "Credit" will light and
2. the program version number will appear: e.g. 5.02 or higher.

Button 5 - Play stimulator

The play stimulator plays automatically a random record after the machine has not played a selection for a period of time which is settable between 1 and 98 minutes which is described under programming of play stimulator.

Button 6 - A-side solenoid

Press button 6; Display shows 6 - 1, relay M6 of the computer and the A-side solenoid should actuate while the display shows 6 - 2.

Button 7 - Check of gear box motor

Press Button 7; relay M should actuate and the changer plays the B-side of the record which happens to be beneath the gripper arm.
Display shows 7 - 4.
If this is done while a record is playing, its play will cease and the record return to the carrier.

Button 8 - Check of record carrier

Press Button 8.
Relay M3 activates and record carrier turns as long as button is held down. Gripper arm must be in rest position. Display should show 8 - 0.

Button 9 - Gripper arm position

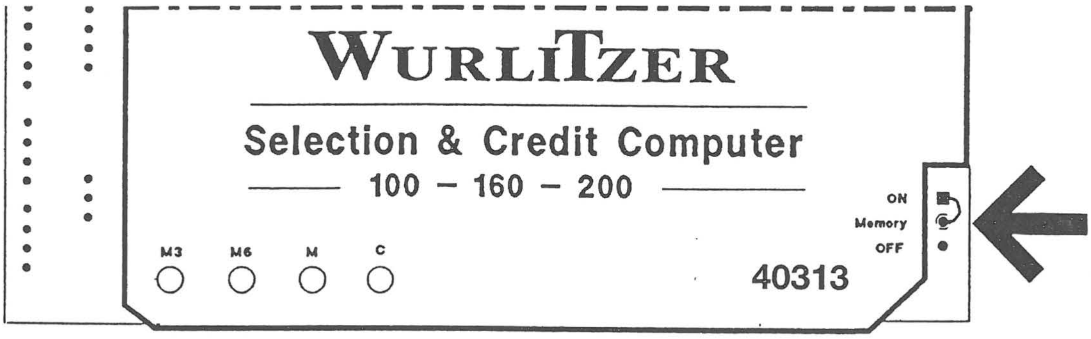
Press Button 9.
Test gripper arm position.
Display will show 9 - 0 if gripper arm is in rest position; then 9 - 1 if gripper arm is in play position.

To leave service program

1. Put slide switch "Service" to OFF.
2. Press "LT". Record carrier turns to position 101.

Memory ON/OFF

Attention: Indications with buttons 1, 2 and 0 are only valid if the internal memory battery is connected to Memory ON (plug on upper pin) as shown:



With memory off (plug on lower pin) counters are reset when the power is interrupted.

b. Free play

Connect jumper wire on "GP" between 0 and F on the computer. Press "LT".Button.

Free play is now on and allows free selection of unlimited titles (max. 252).

c. Play stimulator

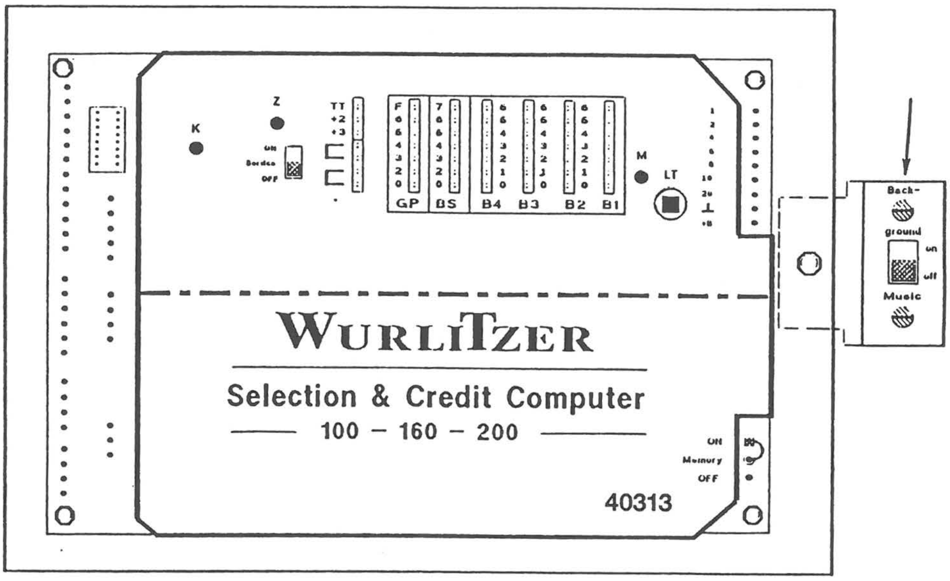
Play stimulator may be programmed to randomly select a title with 1 to 98 minutes between plays.

Set Slide Switch on computer to "SERVICE", and press "LT"
- press selector button 5 for at least 1 second:
  display shows 100
- press 9 (display shows 9 _ _)
- press number of minutes required for the interval
  between play ->01 = 1 minute
  02 = 2 minutes etc.
  00 = play stimulator is switched off

- after programming press "R" (Reset).
- Set service switch to "OFF"
- press "LT"

Record carrier turns one cycle. When record carrier stops, number of minutes required between plays begins.

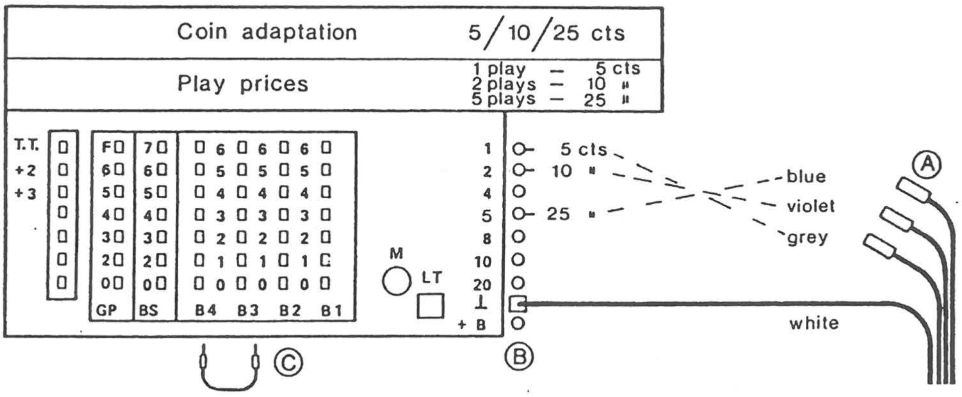
Note: **Continuous play**
Program of 99 minutes for interval between plays will produce continuous play. Coin insertion will cancel this feature.
Background music switch
If a machine is equipped with a background music switch, simply swith to "ON" position to start continuous play or the play stimulator if programmed.

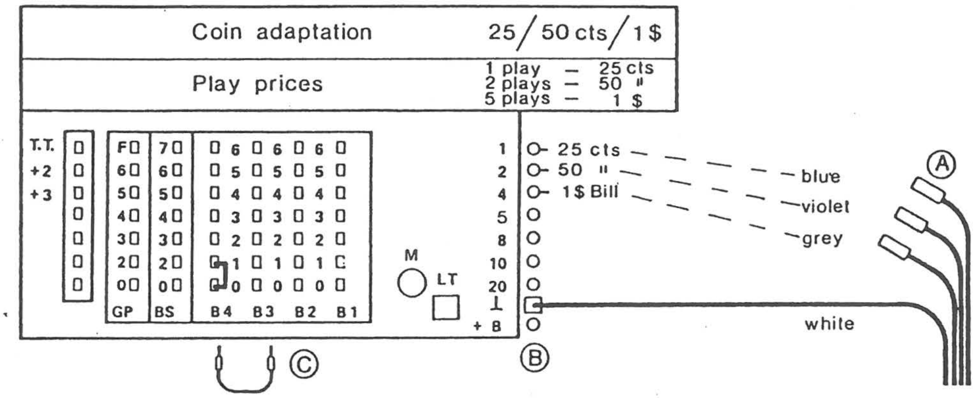

K
Z
ON
Border
OFF
TT
+2
+3
GP
BS
B4
B3
B2
B1
M
LT
Back-
ground
on
off
Music
WURLITZER
Selection & Credit Computer
100 — 160 — 200
ON
Memory
OFF
40313

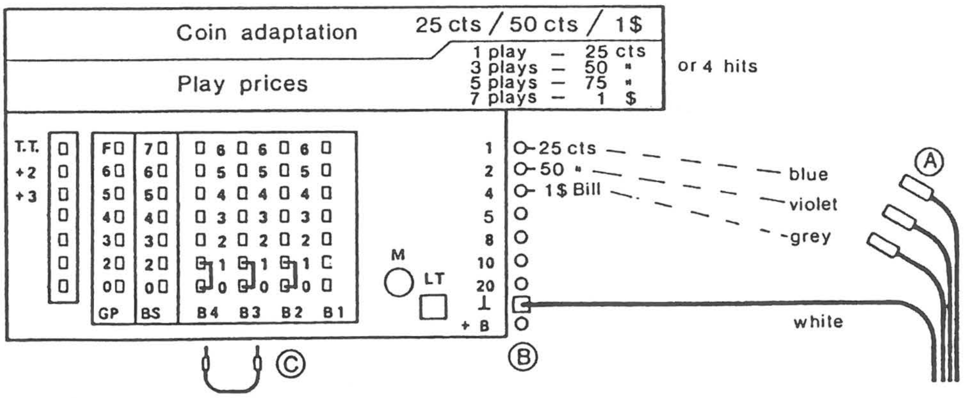
d. Coin and credit programming

Price programming of "OMT" (programming of SCC computer):

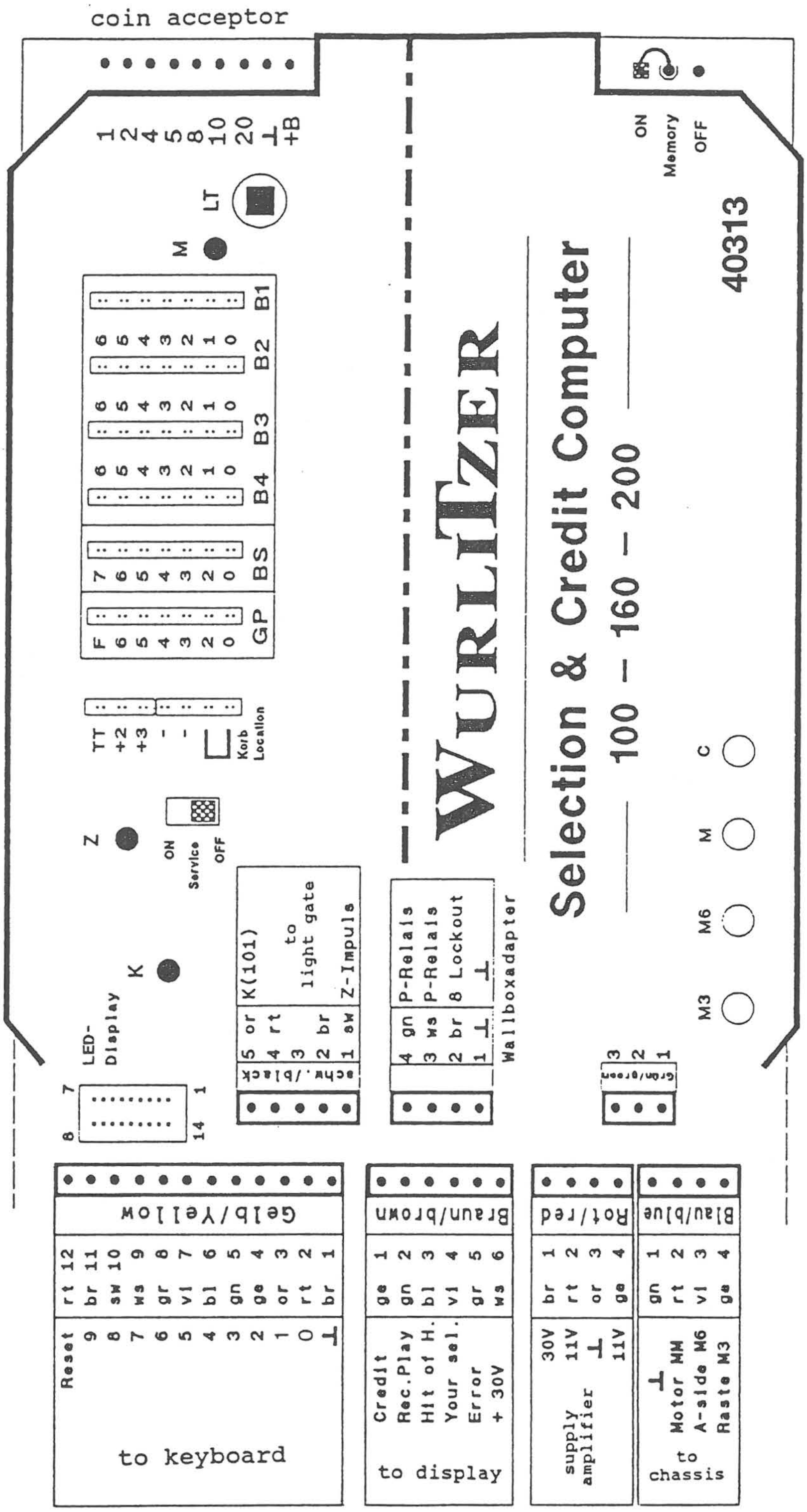
The price of play is set by jumper wires on the computer as shown in the attached example of play price settings. It is important that the LT button is pressed after a new price of play has been set up.


Coin adaptation
5/10/25 cts
Play prices
1 play – 5 cts
2 plays – 10 "
5 plays – 25 "
T.T.
+2
+3
F 7
6 6
5 5
4 4
3 3
2 2
0 0
GP BS B4 B3 B2 B1
M
LT
1 2 4 5 8 10 20 ⊥ + B
5 cts
10 "
25 "
blue
violet
grey
white
Ⓐ
Ⓑ
Ⓒ


Coin adaptation
25/50 cts/1 $
Play prices
1 play – 25 cts
2 plays – 50 "
5 plays – 1 $
T.T.
+2
+3
GP BS B4 B3 B2 B1
M
LT
1 2 4 5 8 10 20 ⊥ + B
25 cts
50 "
1$ Bill
blue
violet
grey
white
Ⓐ
Ⓑ
Ⓒ


Coin adaptation
25 cts / 50 cts / 1$
Play prices
1 play – 25 cts
3 plays – 50 "
5 plays – 75 "
7 plays – 1 $
or 4 hits
T.T.
+2
+3
GP BS B4 B3 B2 B1
M
LT
1 2 4 5 8 10 20 ⊥ + B
25 cts
50 "
1$ Bill
blue
violet
grey
white
Ⓐ
Ⓑ
Ⓒ

e. Diagram - plug descriptions

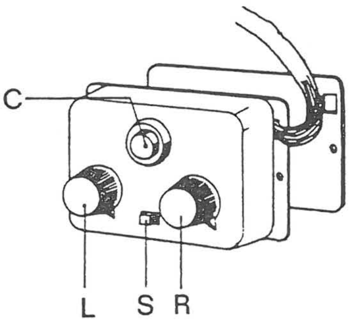

coin acceptor
1 2 4 5 8 10 20 ⊥ +B
ON Memory OFF
LT
M
B1
B2
B3
B4
BS
GP
F 6 5 4 3 2 0
7 6 5 4 3 2 0
6 5 4 3 2 1 0
40313
WURLITZER
Selection & Credit Computer
100 – 160 – 200
TT +2 +3 - -
Korb Location
Z
ON Service OFF
K
LED-Display
7 8 1 14
K(101)
to light gate
Z-Impuls
5 or
4 rt
3
2 br
1 sw
schw./black
4 gn P-Relais
3 ws P-Relais
2 br 8 Lockout
1 ⊥ ⊥
Wallboxadapter
Grün/green
3 2 1
M3
M6
M
C
Gelb/Yellow
Reset rt 12
9 br 11
8 sw 10
7 ws 9
6 gr 8
5 vi 7
4 bl 6
3 gn 5
2 ge 4
1 or 3
0 rt 2
⊥ br 1
to keyboard
Braun/brown
Credit ge 1
Rec.Play gn 2
Hit of H. bl 3
Your sel. vi 4
Error gr 5
+ 30V ws 6
to display
Rot/red
30V br 1
11V rt 2
⊥ or 3
11V ge 4
supply amplifier
Blau/blue
⊥ gn 1
Motor MM rt 2
A-side M6 vi 3
Raste M3 ge 4
to chassis

2. Amplifier

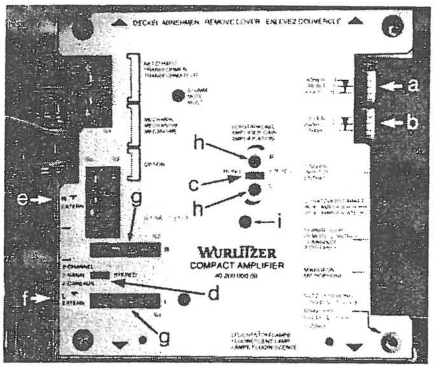
The amplifier is the component which provides power and sound to the speakers. There are several adjustments and settings for sound and volume.

a. Volume Control

The volume control of the amplifier is a separate unit. It is attached to the rear of the machine and connected to the amplifier by a DIN 45 322 plug (6 poles). The control has two volume knobs. One for the left hand channel (L) and one for the right hand channel (R).



When the slide switch (S) is in the stereo position, the left knob (L) controls both channels. When set to 2-channel position each knob controls one channel.
A separate cancel button (C) allows to reject a playing record.

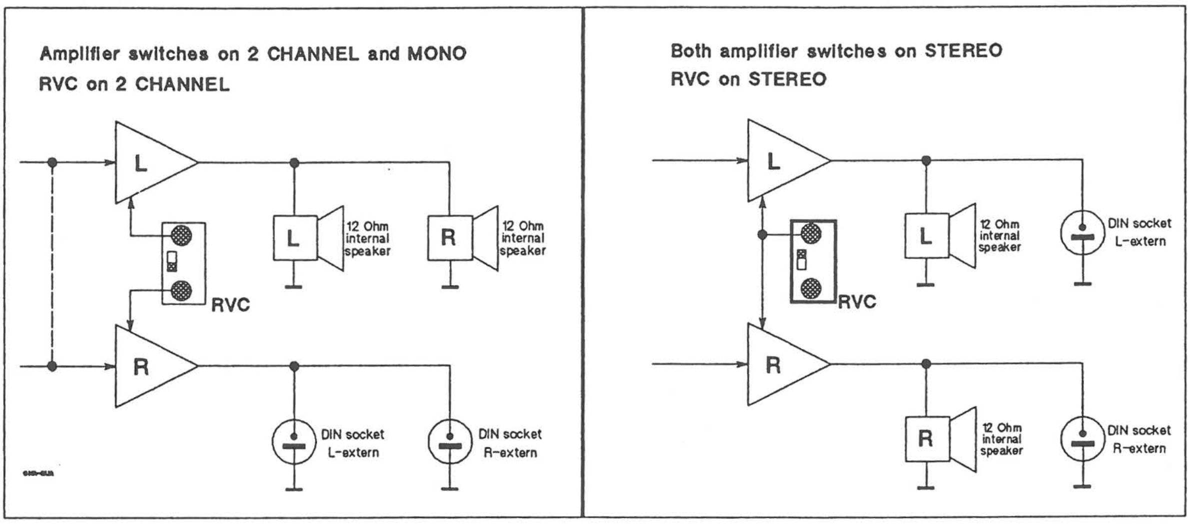

DECKEL ABNEHMEN REMOVE COVER ENLEVEZ COUVERCLE
a
b
h
c
h
i
e
g
WURLITZER
COMPACT AMPLIFIER
STEREO
d
f
g

b. Bass and Treble

The Bass (a) and the treble (b) controls at the amplifier may be set to any position to suit personal acoustic preference.
The Mono-Stereo Switch (c) may also be set to either position, however, it must be set to - Stereo - if a stereophonic reproduction is wanted.

c. The Stereo/Dual Channel Switch (picture amplifier pos. d)

It is set to Stereo for normal operation or to "2-Kanal" for Dual Channel operation.
In this mode all cabinet speakers are switched to the left hand channel and both external speaker sockets (see picture amplifier pos. e/f) to the RH channel. The Volume Control unit with its mode switch set to "2-Kanal" 2 channel now permits an independent volume control for the external as well as for the internal speakers, with the left and with the right knob, respectively.
External loudspeakers are connected to sockets marked R-extern and L-extern at lefthand side of amplifier. DIN plugs are available from dealer.


Amplifier switches on 2 CHANNEL and MONO
RVC on 2 CHANNEL
L
R
RVC
L
12 Ohm internal speaker
R
12 Ohm internal speaker
DIN socket L-extern
DIN socket R-extern
Both amplifier switches on STEREO
RVC on STEREO
L
R
RVC
L
12 Ohm internal speaker
DIN socket L-extern
R
12 Ohm internal speaker
DIN socket R-extern

d. Fuses

Most of the fuses for the "OMT" are located on the amplifier. The position of each fuse is indicated on the amplifier cover. Only one fuse is located in the door.

1. main fuse: 6 A fast blow if main supply = 110 V
   3,15 slow blow if main supply = 220/240V
   (in screw-cap holder in chassis pan apron)

2. Fuse Si 1: Loudspeaker fuse left channel (g)
   and Si 2: Loudspeaker fuse right channel (g)
   Fuse Si 3: 30 V negative supply (Amplifier)
   Fuse Si 4: 30 V positive supply (Amplifier)
   Fuse Si 5: 12 V positive supply (SCC-Unit)
   Fuse Si 6: 30 V AC supply (Turntable motor)

   Fuse values USA-version (110V): Fuse 1-4,6 = 3A slow blow
   Fuse 5 = 1A medium blow

   Other versions 220/240V: Fuse 1-6 = 3,15A slow blow

3. Fuse in door: Heater bubble tubes, rotating tubes motor, lamp in grill
   110V: 3A slow blow
   220/240V: 3,15A slow blow

3. Mechanism

a) Record Carrier
When a selection is made through the selection panel, the computer opens the carrier latch, the carrier rotates until the proper record is positioned under the gripper arm. The light gate sensor indicates the correct position to the computer which then closes the carrier latch stopping the carrier in the correct position.

b) Motor, Gear box, and linkages
The main motor (MM) operates through the gear box and linkages, the gripper arm and tone arm. After a proper selection has been made and the carrier has presented the correct record under the gripper arm, the computer then signals the gear motor MM to start.

c) Gripper arm
After the correct record stops under the gripper arm, the MM motor starts its cycle activating the gripper arm to take the record from the carrier to the turntable. Once the record has finished playing, a tone arm contact activates the MM motor. The gripper arm takes the record back to the carrier.

d) Tone arm and turntable
Once the gripper arm places the record on the turntable the MM motor through the cam and linkages actuates the tone arm to properly place the needle at the start of the record. After the record has been played, the tone arm picks up and the record is returned to the carrier by the gripper arm. The turntable has its own motor which starts automatically as the gripper arm takes the record from the carrier and stops automatically when the gripper arm replaces the record in the carrier.

4. Power, Lights and Bubble Tubes

a) Main Power
The Wurlitzer 1015 "OMT" operates on normal household power outlet.

b) Fluorecent lights
The "OMT" has 5 fluorescent lights which illuminate the color cylinders and the plastic color trim (door).
Each fluorescent tube has its own starter (FS 25).

c) Rotating color cylinders
The "OMT" has two rotating color cylinders. Each is driven by its own motor (25V AC) and gears at the base.

d) Bubble tubes
The "OMT" has eight bubble tubes. Each tube is heated by its own heating element located at the bottom of the tube and filled with methylene chloride. After the "OMT" has been turned on, the bubble tubes should start to bubble within a few minutes. As the bubble tubes start to heat, a popping sound caused by expansion may be heard. This is normal. Should a tube break and the liquid come in contact with skin or eyes, just wash with cold water and seek medical advice.

CHAPTER III
Accessories

a. Remote Volume Control - Infra Red

An infra red volume control unit is available as an option under part number 40 089 000 00.

The control unit has four basic functions:

1. increase the volume
2. decrease the volume
3. mute the sound
4. reject the record

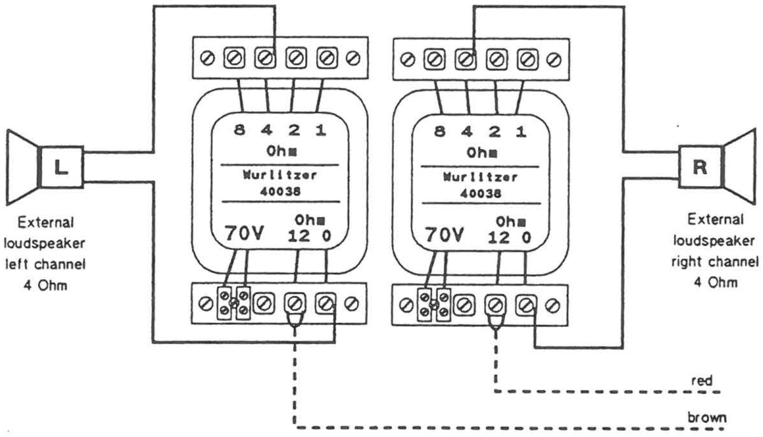
This unit is wireless and has an effective range of approx. 15-20m. The receiver of the infra red volume control is mounted inside of the top of the door.

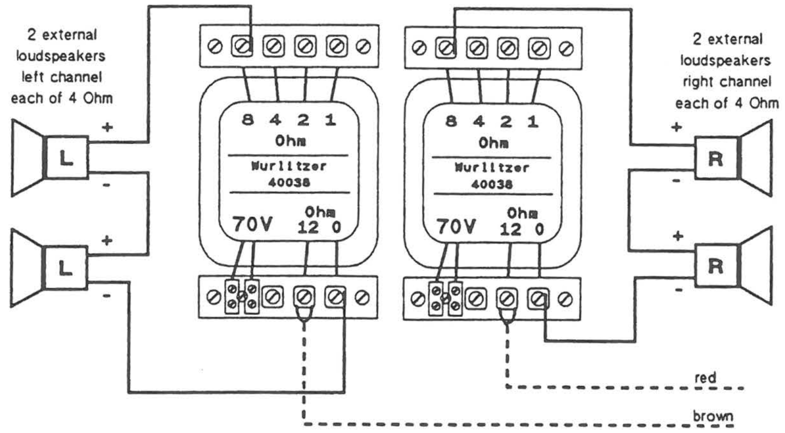
b. Speaker Plug and Cable

Speaker plugs and cables are available from your dealer. These options allow easy hook-up of auxiliary speakers directly to the amplifier.

Note: The speaker connected directly to the amplifier must have not less than 8 Ohms and 50 Watts rating.

For additional speaker capability hook-up can be directly to the 70 V transformers located above the computer. Examples:


8 4 2 1
Ohm
Wurlitzer
40038
70V
Ohm
12 0
L
R
External loudspeaker left channel 4 Ohm
External loudspeaker right channel 4 Ohm
red
brown


2 external loudspeakers left channel each of 4 Ohm
2 external loudspeakers right channel each of 4 Ohm
8 4 2 1
Ohm
Wurlitzer
40038
70V
Ohm
12 0
L
L
R
R
+
-
red
brown

c. Microphone Kit - available under part number 40 090 000 00
This unit facilitates the use of the phonograph as paging system, when playing as well as in idling periods. If the paging microphone is switched on while the phonograph is playing, the music fades away for this period. This kit is to be connected to the amplifier at its "Mikrofon" socket without any further alterations at the amplifier, instructions are issued with the kit.

d. Background Music Adaptor
This unit is available under part number 48 861 004.
The adaptor allows background music to be piped through the jukebox from another source such as radio or another stereo unit.
If a selection is made on the jukebox, the background music stops while the record is playing and resumes when the record is finished. The hook-up for this adaptor is the same as the microphone.

e. Bill acceptor (option)
The bill acceptor allows customers to use dollar bills in the jukebox. Instructions are included with the kit and most machines have a bullet in the adaptor to accept this option.

CHAPTER IV

Trouble shooting chart

Electronic Phonographs employing the S&CC Unit 40 312 or 40 313 — Page:

CHAPTER I Failures with the illumination, lamps and power system generally. 16-17
1. No light, phonograph not working at all.
2. Illumination does not light; phonograph otherwise works.
3. One or the other indication lamp does not light up; phonograph otherwise works
4. All indicator lamps remain dark; phonograph otherwise works.
5. Digital display remains dark; phonograph otherwise works.
6. Digital display shows non-sense figures; phonograph otherwise works.
7. Digital display shows incomplete figures (missing segment). The fault is the same with all three digits.
8. Digital display shows incomplete figures (missing segment). The fault, however, occurs with one of the three digits only.
9. One digit of display completely missing.

CHAPTER II Fuses of the power supply. Which one controls what circuit? 18-19
1. Mains Fuse
2. Fuses SI 1 and SI 2
3. Fuses SI 3
4. Fuses SI 4
5. Fuses SI 5
6. Fuses SI 6

CHAPTER III Faults with the coin and credit system. 19-20
1. Even good coins are rejected as bad ones.
2. Wrong credits (or no credit) with one type of coin.
3. Permanent credit, display shows 1 permanently, free selections.
4. Wrong credits, repetitive or at odd times, with credit above or below the programmed pricing.
5. No credit although coins are properly accepted. Free plays by jumpering 0 to F at GP, still possible.
6. No credit although coins are accepted; LED M does not light up. Even no free play credit with GP-jumper at 0 - F.

CHAPTER IV Faults with the selection system (Credit system does work). 20-22

1. No selections; numbers of actuated keys not displayed (but credit is).
2. No selections. After insertion of coins a number appears in the left hand (hundreds) digit but selection keys are disabled. With insertion of further coins the new credit is displayed properly.
3. No response from one key (or more).
4. The record played is not the one selected. The selection was properly displayed, and the "RECORD PLAYING" display is the same.
5. The record played is not the one selected. The selection was properly displayed but the "RECORD PLAYING" display is that of the record actually playing.

CHAPTER V Repetitive play of records, selected or non-selected ones. 22

1. Repetitive play of one record with the record carrier not making a rotation between the repetitions. This continues even if plug BLUE is disconnected at the computer.
2. Repetitive play of one record; discontinued after plug BLUE is pulled at the computer.

CHAPTER VI Failures of the record changer after a properly completed selection. 23-25

1. Record carrier permanently rotating, even after plug BLUE is pulled at the computer.
2. Record carrier permanently rotating but stopping after plug BLUE is pulled at the computer.
3. Carrier does not start after a properly completed selection. Carrier latch does not open.
4. Record carrier does not rotate although the carrier latch opens after a seletion.
5. A-side selections are not played but the B-side is played instead
6. Gripper arm does not move to take the record out of the carrier although the selected record was properly brought forward.
7. Tone arm not moving to play record; selected record was properly brought to the turntable.

  8. Turntable does not rotate; record to be played is properly brought forward.
  9. Record on turntable returned to carrier before play has commenced.

CHAPTER VII Failures with the tone arm or the tone system. 25-26
  1. First second of music missing because pick-up jumps off starting groove.
  2. Starting point of pick-up floating (varies from record to record).
  3. Record not completely played tone arm lifts off too early.
  4. Record playing but no sound from the speakers.

CHAPTER VIII Record not properly returning to carrier. 26
  1. Gripper arm does not move to take record home.
  2. Returned record not properly unclamped (not freed) in the carrier.
  3. Record missing in compartment is found in other compartment or somewhere about the chassis.

CHAPTER IX Notes 1 to 10 to the Trouble Shooting Chart 27-30

CHAPTER I Failures with the illumination, lamps and power system generally.

1. Symptons: No light, phonograph not working at all.
   - Cause: No power at wall socket; open primary circuit
     - Possible faults:
       - House fuse blown.
       - Line switch off or defective.
       - Phonograph`s fuse Si 1 blown, ref. to CHAPTER II
       - Internal break in line cord or plug.

2. Symptoms: Fluorecent tubes do not light; phonograph otherwise works.
   - Cause: Defective circuit; refer to CHAPTER IX, Note 1.
     - Possible faults:
       - Lamps circuit plug not in light socket at amplifier.
       - Tube not properly seated in holder.
       - Defective starter, defective tube.

3. Symptoms: One or more of the lights do not light up; Phonograph otherwise works.
   - Cause: Lamp`s circuit open.
     - Possible faults:
       - Bulb defective.
       - Defective lamp socket.
       - Defective plug BROWN or its wiring resp.
       - Defect inside the computer, e.g. lamp driver transistor

4. Symptoms: All lights are dark, Phonograph otherwise works.
   - Cause: Supply or common return of lamp`s circuit open.
     - Possible faults:
       - Plug to the digital lights.
       - Wire +30V broken (Plug BROWN, pole 6, white line).
       - External short in lamps circuit has tripped T 5 (inside S & CC); this disables IC 14 to protect lamp driver transistors.
       - Lamps of too high current rating.
       - No 30VAC S & CC-supply via pole 1, plug RED; 30V rectifier D7 defective (this, however, disables the coin acceptance also).
       - coin inputs.

5. Symptoms: Digital display remains dark; Phonograph otherwise works.
Cause: Display signal circuit interrupted.
Possible faults: 14-pole D.I.L. plug not in place or wrong way `round.

6. Symptoms: Digital display shows non-sense figures; Phonograph otherwise works.
Cause: Signal lines interchanged.
Possible faults: 14-pole D.I.L. plug to display displaced not in line with base.
Computer defective, e.g. IC 23

7. Symptoms: Digital display shows incomplete figures (missing segment).
The fault is the same with all three digits.
Cause: Signal for one (or more) segments missing.
Possible faults: One pin (or more) of 14-pole plug broken off.
One wire (or more) of flat cable broken.
Broken connection at display PC-board.
Computer defective, e. g. IC 23

8. Symptoms: Digital display shows incomplete figures (missing segment).
The fault, however, occurs with one of the three digits only.
Cause: Segment signal does not reach this digit.
Possible faults: Cracked conductor on display PC board.
Defective display unit (3 identical one-digit units).

9. Symptoms: One of the digits of display completely off.
Cause: Multiplex signal missing.
Possible faults: Defective plug to display or broken wire (A1, A2, A3).
Computer defective (T6, T7, T8).
Defective display element.

CHAPTER II Fuses. Which one controls what circuit?

The open holders of the L.T. fuses are capable to hold either 5x20 mm fuses of DIN 41571 standard or fuses of 6x30 mm size.
The holder of the H.T. primary fuse (mains) will hold one or other type of fuse depending on the screw cap used.
The proper rating for the fuses in all of these holders is 3,15 Amps (or 3 to 4 Amps) SLOW BLOW. Slow Blow fuses of DIN standard bear the letter T, hence T3,15 is the proper type to be used. Only exception is for phonographs inside U.S., where a FAST BLOW fuse of 6,3 Amps (F 6,3 of 6x30 mm size) is used for the primary mains fuse. M-type (medium) fuses are not to be used with this phonograph.

1. Mains fuse: (in-screw cap holder in chassis pan apron) T 3,15 (F 6,3 in U.S.)
   Symptoms if blown: No illumination, phonograph completely dead.

2. Fuses Si 1 and Si 2: Loudspeaker fuses.
   Symptoms if blown: No sound on L.H. channel (Si 1) or R.H. channel; SI 2 the reason for a blown fuse here might be a shorted power transistor.

3. Fuse Si 3: 30 V negative supply.
   Symptoms if blown: Amplifier distorting on both channels, green LED 1 not lit. With the changer, solenoid M3 (carrier latch) and M6 (A-side) not working.

4. Fuse Si 4: 30 V positive supply.
   Symptoms if blown: Amplifier silent. Gear motor not working.

5. Fuse Si 5: 12 V positive supply.
   Symptoms if blown: S & CC-computer dead. (except red LED-M still lighting up on coin insertion).

6. Fuse Si 6: 30 V AC supply.
   Symptoms if blown: Record carrier motor KM and turntable motor PM both not working. S & CC-computer not registering coins (red LED-M not lighting up).

7. Fuse in door: 25V AC supply
Symptoms if blown: Both rotating cylinders not turning, bubble tubes not heating, lamp in grill not lighting.

CHAPTER III Faults with the coin system. The phonograph, however, operates normally with credits established with the Free Credit Button (located above the coin switches).

The function of the coin system can be checked by observing the LED-light "M" at the computer, which should light up with every coin accepted as well as every time Free Credit Button is actuated.

1. Symptoms: Even good coins are rejected as bad ones.
Cause: Disabled slug rejector.
Possible faults: Dirt, oil, an odd article in the rejector; rejector maladjusted.
Binding reject rod assembly holding rejector gate open.
Rejector or entire phonograph not level.

2. Symptoms: Wrong credits (or none) with one type of coin.
Cause: Coin actuates the wrong coin switch.
Coin pulse does not reach the Computer.
Possible faults: Slug rejector not properly positioned, leading the coin to the wrong switch paddle or bypassing it.
One line of the Coin Switches-to-Computer cable broken, disconnected at either end or wrongly set at Computer connector.

Computer defective (IC 17 - IC 19, diodes D 14 - D 24).

3. Symptoms: Permanent credit, display shows 01 permanently, free selections.
Cause: Jumper is set form 0 to F (free play).

4. Symptoms: Wrong credits, repetitive or at odd times, with credit above or below the programmed pricing.
Cause: Programming mistake.
Possible faults: Wire jumper not in right position. Refer to the examples.
Programming jumper making poor contact (such can change pricing only after the unit had been switched off or the LT button had been actuated).

5. Symptoms: No credit although coins are properly accepted. Free Play, with GP jumper O-F still possible.
Cause: All coin input lines disabled, (LED does not light up).
Possible faults: Plug M not set.
Common return of coin inputs (Plug M, pole 2, grey) open circuited.
Supply 30 VAC missing (Plug RED, pole 1, brown line. In this case, however, all the indicator lamps fail too).
Computer defective (e.g. Diode 1 interrupted).

6. Symptoms: No credit although coins are registered (LED-M-lights up).
Even no free play credit with GP jumper set 0 to F.
Cause: Computer out of operation.
Possible faults: No power supplied to the computer, compare CHAPTER II/5.
Computer defective.

CHAPTER IV Faults with the selection system (Credit system does work).

1. Symptoms: No selections; numbers of actuated keys not displayed (but credit is).
Cause: Open or shorted circuits in the keyboard wiring.
Possible faults: Plug YELLOW displaced or not deep enough inserted.
Key RESET permanently closed or shortened to ground (pole 12, brown, plug YELLOW).

2. Symptoms: No selections. After insertion of coins a number apears in the left hand (hundreds) digit but selection keys are disabled. With insertion of further coins the new credit is displayed properly.

   Cause: Permanent selection signal from that key who`s number appeas on the display.

   Possible faults: Jammed key permanently closed key contact.
   Wire of this shortened to ground.

3. Symptoms: No reponse from one key (or more).

   Cause: Open circuit with this key.

   Possible faults: Malfunction of this key`s contact.
   Insufficient key travel.
   Broken wire with this key.
   Plug YELLOW not good enough seated.
   Computer defective with the affected input circuit (R65-R86 etc.).

4. Symptoms: The record played is not the one selected. The selection was properly displayed, and the "RECORD PLAYING" display is the same.

   Cause: Improper counting of record carrier`s position.

   Possible faults: Wrong adjustment of light control gates (ref. to CHAPTER IX 3 A/B).
   Interference pulses counted as carrier pulses.
   Illumination light affecting the Z light gate; reflections at the edges of carrier base plate.

5. Symptoms: The record played is not the one selected. The selection was properly displayed but the "RECORD PLAYING" display is that of the record actually playing.

   Cause: Record carrier not latched instantly when the selected record was underneath the gripper arm.

   Possible faults: Record carrier latch delayed by mechanical friction.
   Record carrier latch too wide (latching to late).
   Light control gate Z retarded, ref. to CHAPTER IX, 3 A/B for proper adjustment).

6. Symptoms: The selected record will not be played. Instead the record carrier rotates continuously, however, it stops if "BLUE" plug is pulled at the S & CC.
Cause: Light gate signal Z (counting) or K (count start) or both missing.
Possible faults: Lamp of light gate defective.
Broken line in the wire to plug BLACK.
See notes 3 A/B of CHAPTER IX.

CHAPTER V Repetitive play of records, selected or non-selected ones.

1. Symptoms: Repetitive play of one record with the record carrier not making a rotation between the repitions. This continues even if "BLUE" plug is disconnected at the computer.
Cause: Main cam motor not stopping at the end of the play cycle.
Possible faults: Braking resistor R 10 (47 Ohms) at motor MM open.
Wiper switch K 6 maladjusted.

2. Symptoms: Repetitive play of one record; discontinued after plug "BLUE" is pulled at the computer.
Cause: Computer running out of program.
Possible faults: Computer out of program routine, possibly caused by an interference pulse. (cut power to S & CC for a second, to initiate a restart of program).
Computer defective.

3. Symptoms: Gripper moves a record continuoulsy to and fro (without having the record actually played).
Cause: Motor MM has a permanent ground return.
Possible faults: Line Blue to pole 2 of plug "BLUE" shorted to ground.
Wiper K6 shorted to ground.
Computer defective (Relay 2-M- permanently on; pull plug "BLUE" to test this. Try Service Program, key 7 and observe relay 2 through hole M).

CHAPTER VI Failures of the record changer after a properly completed selection.

1. Symptoms: Record carrier continuously rotating, even after plug "BLUE" is pulled. If a selection is made the carrier will be jammed when the gripper arm tries to grip a record.
   Cause: Carrier latch permanently open.
   Possible faults: Carrier latch or its solenoid jammed.

2. Symptoms: Record carrier continuously rotating. If a selection is made the record played is one placed about 10 compartments behind the selected one.
   Cause: Carrier latch solenoid permanently switched on.
   Possible faults: Grey line from M3 to pole 4 of plug "BLUE" shorted to ground (= fault does persist if plug "BLUE" is pulled).
   Relay 4 of S & CC jammed or permanently switched on (= carrier stops as soon as plug "BLUE" is pulled).

3. Symptoms: Carrier does not start after a properly completed selection. Carrier latch does not open.
   Cause: Circuit of the carrier latch solenoid not completed.
   Possible faults: DC supply -30V missing (Fuse Si 4).
   Coil of latch solenoid M3 open.
   Grey line from M3 to pole 4 or green line to pole 1 (relays common), plug "BLUE", interrupted.
   Computer defective; go to Service Program, key 8, to check relay 2-M3-. Test machine with a programming jumper from pole 1, green, to pole 4, grey. - Refer to Note 10, CHAPTER IX.

4. Symptoms: Record carrier does not rotate although the carrier latch opens after a selection.
   Cause: Carrier motor KM disabled.
   Possible faults: Micro switch M3 (at carrier latch) maladjusted or defective.
   Micro switch K8 (at gripper arm) maladjusted or gripper arm not fully in rest position (ref. to CHAPTER IX,4).
   Defective motor KM, broken wiring.

5. <u>Symptoms</u>: A-side selections (odd numbers) are not played but the B-side of that record (even number following) is played instead.
<u>Cause</u>: M6 shift solenoid and/or shift rod not working.
<u>Possible faults</u>: M6 coil open, M6 circuit open. Shift rod binding, ref. to note 5, CHAPTER IX. Pole 3 (violet wire) of plug "BLUE" not making contact. To check this, pull plug "BLUE" and insert a jumper wire (programming jumper of the S & CC) from pole 1 (green) to pole 3 (violet); if M6 is now energized the fault then is inside the computer (e.g. relay 3 -M6- is not working.

6. <u>Symptoms</u>: Gripper arm does not move to take the record out of the carrier although the selected record was properly brought forward. After aprrox. 3 seconds the carrier moves to the next selection if such is due.
<u>Cause</u>: Main cam motor MM does not start.
<u>Possible faults</u>: Motor MM defective; resistor R 15 (18 Ohms) open; no DC +30V to the motor (fuse Si 4); interruption with the blue line from amplifier to motor. Short within the motor or with capacitor C5 (in these cases R 15 gets rather hot!) Pull plug "BLUE" and set a jumper from pole 1 (green) to pole 2 (blue): If motor MM then runs, the fault is within the S & CC. Relay 2 -M- not working: go to Service Program and test with key 7.

7. <u>Symptoms</u>: Tone arm not moving to play record; selected record was properly brought to the turntable.
<u>Cause</u>: Main cam motor MM switched off too early. Mechanical fault with the tone arm`s tracking linkage.
<u>Possible faults</u>: Wiper switch K6 defective or maladjusted (ref. to note 7, CHAPTER IX). Tone arm loose on shaft (Two worm screws M 3x4 mm). Linkage to tone arm control cam broken.

8. Symptoms: Turntable does not rotate; record to be played is properly brought forward.
Cause: Turntable motor PM disabled, transmission disabled.
Possible faults: Transmission O-ring from motor to turntable broken or fallen off.
Pulley freewheeling on motor shaft (worn screw M 3x4 mm).
Micro switch K8 not making contact after being released by record clamp.
Defective turntable motor, open phase shift capacitor C 18.

9. Symptoms: Record on turntable returned to carrier before play has commenced.
Cause: Main cam motor MM not resting when system in play position.
Possible faults: Cancel button at amplifier jammed in "cancel" position, same with cancel button of a remote control; shorted remote control cable.
Tone arm trip switch K3 defective (jammed in trip position).
Resistor R 10 at motor MM open (ref. to note 4, CHAPTER IX).

CHAPTER VII Failures with the tone arm or the tone system.

1. Symptoms: First second of music missing because pick-up jumps off starting groove.
Cause: Tone arm release lever and bushing assembly opening too late (ref. to Bild 21, p. 17, Service Manual).
Possible faults: Tone arm release adjusting screw not far enough in.

2. Symptoms: Starting point of pick-up floating (varies from record to record).
Cause: Tone arm release lever and bushing assembly opening too early or tone arm loose on shaft (refer to Bild 21, page 17, Service Manual).
Possible faults: Tone arm release adjusting screw too far in. 2 worn screws M 3x4 not tight.

3. Symptoms: Record not completely played - tone arm lifts off too early.
Cause: Main cam motor restarted too early by tone arm trip switch K3.
Possible faults: Tone arm trip switch K3 maladjusted. Retard (unscrew) adjusting screw to have play time extended (refer to "TE", Bild 21, page 17, Service Manual).

4. Symptoms: Record playing but no sound from the speakers.
Cause: Defect in the system pick-up - amplifier - speakers.
Possible faults: Pick-up connector or speaker plug not set at amplifier.
Fuses Si 1 and Si 2 open (speaker fuses).
Fuse Si 4 open (=+30VDC missing, this, however, would also disable motor MM).
Grey line (pole) of amplifier-to-changer cable broken off wiper K1 but shorted to ground.
Amplifier defective (Transistor Tr2), ref. to Note 8, CHAPTER IX, for amplifier muting.

CHAPTER VIII Record not properly returning to carrier.

1. Symptoms: Gripper arm does not move to take record home.
Cause: Main cam motor MM not starting.
Possible faults: Tone arm trip switch K3 not making, maladjusted or open circuited.
Refer to 6., CHAPTER VI, for faults if symptom could have developed while a record was playing.

2. Symptoms: Returned record not properly unclamped (not freed) in the carrier.
Cause: Main cam motor MM switched off too early.
Possible faults: Wiper switch K6 wrongly adjusted (compare with CHAPTER VI, Symptom 4 and refer to note 4, CHAPTER IX).

3. Symptoms: Record missing in compartment is found in other compartment or somewhere about the chassis.
Cause: Gripper arm delayed and retarded by record binding with the turntable (refer to note 9, CHAPTER IX).
Gripper arm generally moving too fast.
Possible faults: Maladjusted turntable chassis linkage.
Burr at the turntable pilot or at the record`s centering hole.
Series resistor R 15 (with motor MM) shorted.

CHAPTER IX

Note 1 The fluorescent lamp`s circuit is based on 220 V. Except with certain "UL"-models, there are always 220 V at the lamp`s socket on the amplifier panel disregarding the actual voltage the phonograph is adjusted to and operating with. Lamp, starter and ballast is a matched group, never use replacements of other wattage! Check for a defective starter before you check for a defective lamp.

Note 2 Some actual low tension power readings (averages). Numbers left of/are effective (R.M.S.) values, read with a moving iron instrument. Numbers right of/are mean integrated values, read with a moving coil instrument.

	Changer & Computer idling	Record Carrier searching	Gripper Arm towards A-side title*	Gripper Arm towards B-side title*	Record Playing at minimum volume
-30V, read at fuse Si 3	33,0/ 31,5	29,7/ 27,5	31,0/ 29,5	33,0/ 30,5	33,0/ 28,5**
+30V, read at fuse Si 4	33,0/ 31,5	30,5/ 29,5	31,5/ 29,0	32,0/ 30,0	33,0/ 28,5**
+12V, read at fuse Si 5	10,0/ 12.5	9,5/ 11,5	10,0/ 12,0	10,0/ 12,0	10,0/ 12.5
30 V AC, read at fuse Si 6	31,5/ 29,5	29,5/ 27,5	31,0/ 29,5	31,0/ 29,5	31,5/ 29,5

All readings rounded for nearest full or half Volt.

* Readings made while gripper arm is on the way from carrier towards turntable.

** At full volume these readings are around 1 Volt lower.

Voltage readings directly at the S & C Computer against its chassis = ground.

Plug BROWN, pin 6 (brown) : +40 V DC = voltage to indicator lamps.
Plug RED , pin 1 (black) : 30 V AC = supply for computer
Plug RED , pin 2 (brown) : 11 V AC = supply for computer
Plug RED , pin 3 (red) : Zero V = ground & centre for pins 2 and 4
Plug RED , pin 4 (orange) : 11 V AC = supply for computer

Note 3 A: A selected record can properly be located only as long as the light gate controls are working properly. The counting pulses can be checked easily by observing the LED indicator Z which has to light up rhythmically when the carrier is rotating (manually unlock the carrier latch for a check).
LED Z is dark whenever the carrier is at a standstill but has to light up as soon as a tooth tip of the carrier`s base plate has passed the carrier latch`s front edge for about 1 - 2 Millimetres. For a check lift the carrier off its friction drive wheel a little, unlock the carrier latch with the other hand and advance the carrier slowly manually.

Note 3 B: The locating pulse "101" can be checked with the LED indicator. For a check bring the record preceding 101 beneath the gripper arm. Both K and Z then have to be dark. Do not mind if K is lit when the carrier rests with 101/102 beneath the gripper arm. Then advance the carrier slowly (lift off the drive as explained with note 3 A): K now has to light up by all means before Z but a very little advance in time is sufficient and K must still be alight when Z lights up. Which LED then goes out first does not matter but k by all means must be out before Z lights up again for the next record approaching the gripper arm.
If K lights up behind Z, the computer cannot find its starting position and the record to be located will never be found,- the carrier then rotates permanently. If K is still alight when Z lights up for 103/4, the computer will consider this one as 101 and any record located will be that one "behind" the one actually selected.
The light gate assembly can be shifted for about 1 mm to find a proper timing.

Four K-signals in succession without a selection played in between causes a memory erase same as if the LT button is actuated. Therefore, rotation checks with the carrier should be terminated with an actuation of LT to prevent complaints raised by the first patron making a selection after the service, that he lost his money because his selection led to the fourth K-signal in succession!

Note 3 C: The lamp of the light gates is one of 24 Volts, 3 Watts. The actual burning voltage is reduced to about 12 Volts by a series resistor, or commencing with serial no. 6511 9514, by the 12 Volts regulator of the amplifier. The Phonotransistors of the light gates can be checked with an Ohm-Meter at plug BLACK when disconnected. Read between poles 3 and 5 for the gate K and between poles 2 and 3 for gate Z. Results will be obtained only if poles 2 or 5 res. are positive to 3, hence, interchange the poles for a test. With an open light gate the Ohms reading should be below "Kilo-Ohms and with the light broken it should be above 2 Meg-Ohms.

Note 4: Micro Switch K8 is actuated by the large record clamp of the gripper arm. If this switch is maladjusted or if the main cam and gear box stops before this record clamp is fully retracted. K8 will not be actuated. This disables the changer for the next search run and keeps the turntable running all the time.
The same situation, however, can be produced by a main cam and gear box over running the proper rest positions and stopping finally at a time when K8 is released again. Symptom 4 of CHAPTERVI, Trouble Shooting Chart, refers to the first situation, symptom 2 of CHAPTER Viii to the second.

To test, actuate K8 manually and run the changer through some play cycles. The record clamp has to actuate K8 before it reaches the most retracted position and has come to rest before it has passed this position; compare the adjustment instructions.

If the system over runs the most retracted position with a K6 switch of proper adjustment, check R 10, the braking resistor parallel to (and located at) the motor, it should not read more than 55 Ohms.

Note 5: The A-side solenoid M6 is in circuit for an A-side selection for about 3 seconds only, counted from the moment the carrier has stopped with the selected record beneath the gripper arm. Well within these 3 seconds the shift rod is locked in its A-side position by the holdout cam already; refer to pos. 20 and 26 of Fig. 16, Spare Parts List. The shift rod is free to be moved manually at the time the changer is in idling position.

Note 6: With a dead motor MM check the carbon brushes. Worn-out brushes are not likely before some years of service, however, a lack of contact pressure is feasible (binding brush holder). Watch for the insulation ring at one end of brush`s tension spring; without this ring the motor is shorted and resistor R 15 will burn-out.

Note 7: A detail of circuit timing: Main cam motor MM is started by relay 2 of the computer for about 3 seconds. After this the Transfer switch K6 should have made well within these three seconds. If K6 is maladjusted or defective, the main cam motor will stop in this moment, that is when the gripper arm is about half way between the record carrier and the turntable.

Note 8: The amplifier muting is by an electronic circuit governed by transistor Tr 2, and controlled by switch K1 via the grey line, pole 8, amplifier-to-changer cable. The amplifier is mute as long as this line is grounded, hence, the amplifier works outside the phonograph with microphone kit adapter without any need to alter the mute circuit.

Note 9: The gripper arm is linked with the cam & gear shaft by a two-way spring clutch. If the record somehow is locked with the turntable and the arm is unable to take it off, the gear box still does advance and loads the clutch spring. Finally, the spring at a certain tension will free the record and then the arm flips to catch up. The record then is thrown about and may land in a wrong compartment or anywhere.

A maladjusted turntable chassis linkage may force the turntable to far to the right, thus "pinching" the record between the turntable pilot and the arm`s upper clamp, especially if this is positioned deeper than the plane of the record. Such a situation may lock the system turntable (at pilot) -record- gripper arm.

With a main cam & gear unit generally moving too fast, the arm may run the returning record into the neighbour compartment or even lose it. A complete gear cycle normally takes about 12 seconds, never permit times shorter than 10 seconds. To check time, make a selection and hold the cancel button (amplifier) down all the time the arm moves. Time is counted from the moment the record carrier stops till the homed record is unclamped and micro switch K8 is actuated.

If there is a second record in one compartment and the original record is selected, there is a 50 % chance that the wrong one is played; the service call to be expected in such a case will be likely one of a "wrong selection".

The gripper arm when taking two records may lose the one of the smaller diameter and that may be the original one. This counts for the strange situation that a record is found laying about with another one found in that record`s compartment; - a remote chance anyhow.

Note 10: Transistor T 22 pulls its collector to L as soon as the negative supply of the changer appears at the switch of relay 4 thus indication that the record just been played is now back in the carrier. If this circuit is defective, the computer does not sense this but "thinks" the record is still playing. Hence it will not start a new search run although it has accepted coins and selections properly.

For a start short the collector of T 22 to ground momentarily. An external test can be made via the Service Program, key no. 9. Typical for this fault is that a selection accepted will be played after the S & CC was switched off for a second or two.

CHAPTER V
Schematics

Table of Contents Page:

Amplifier 33

List of electronic parts 34

Selection and Credit Computer 35

Functional schematic chassis 37

Wiring Diagram 39

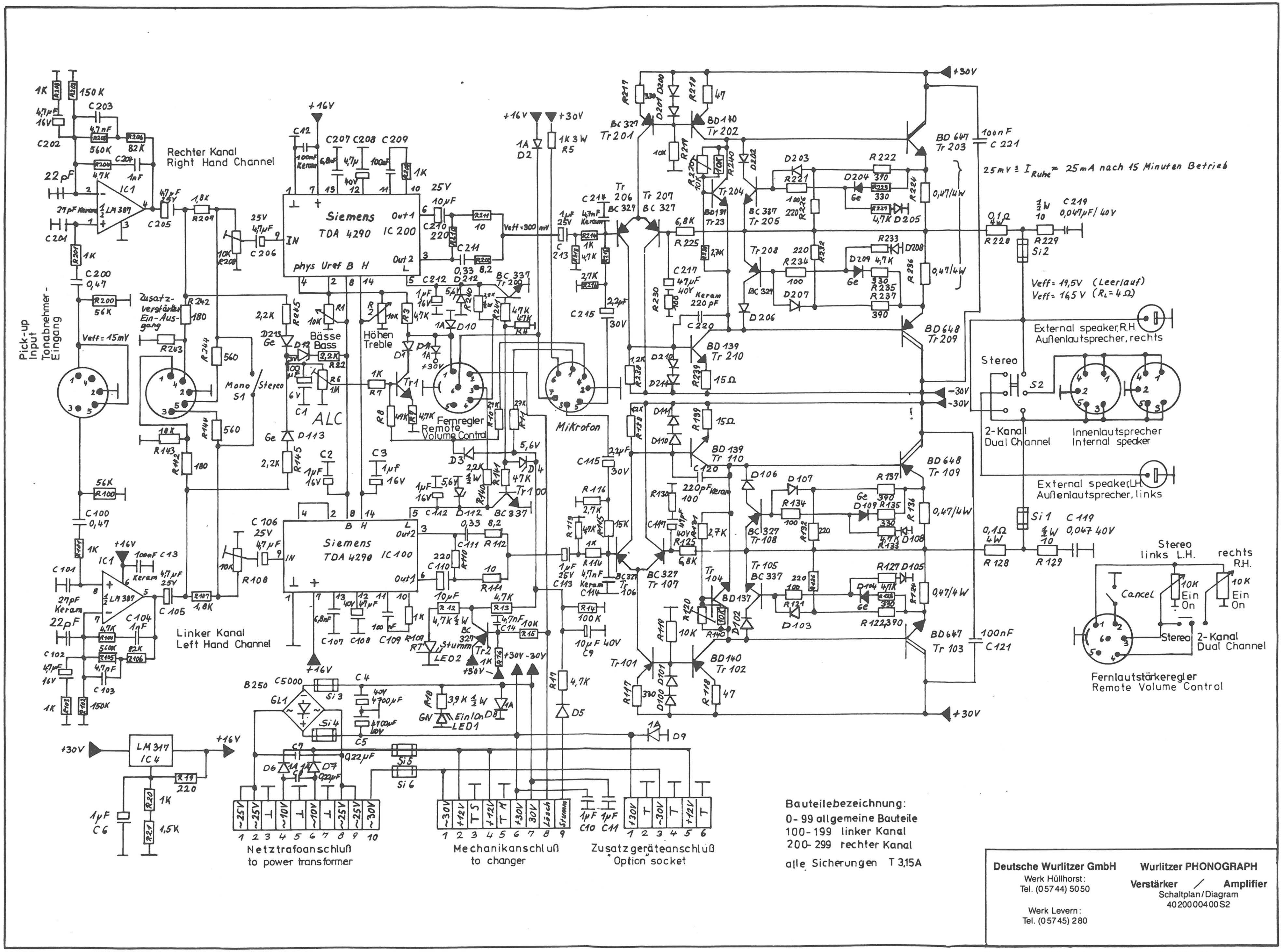
Interface bubble tubes 40

Interface for MMS 11 40

Power supply and ballast 41

Interface for MMS 130 42

Bill acceptor VFM 3 43-45


Rechter Kanal
Right Hand Channel
Linker Kanal
Left Hand Channel
Pick-up Input Tonabnehmer-Eingang
Veff = 15mV
Siemens TDA 4290 IC 200
Siemens TDA 4290 IC 100
½ LM 387 IC1
Zusatz-verstärker Ein-Aus-gang
Mono / Stereo S1
Bässe Bass
Höhen Treble
ALC
Fernregler Remote Volume Control
Mikrofon
Veff = 300 mV
BD 647 Tr 203
BD 648 Tr 209
BD 648 Tr 109
BD 647 Tr 103
BD 140 Tr 202
BD 140 Tr 102
BD 139 Tr 210
BD 139 Tr 110
25mV ≙ I_Ruhe = 25mA nach 15 Minuten Betrieb
Veff = 19,5V (Leerlauf)
Veff = 16,5V (R_L = 4Ω)
External speaker R.H. Außenlautsprecher, rechts
External speaker L.H. Außenlautsprecher, links
Stereo
2-Kanal Dual Channel
Innenlautsprecher Internal speaker
Stereo links L.H. rechts R.H.
Cancel
Ein On
Fernlautstärkeregler Remote Volume Control
+30V
-30V
+16V
LM 317 IC 4
B250 C5000 GL1
Ein/On LED1
Stumm
Netztrafoanschluß to power transformer
Mechanikanschluß to changer
Zusatzgeräteanschluß "Option" socket

Bauteilebezeichnung:
0- 99 allgemeine Bauteile
100- 199 linker Kanal
200- 299 rechter Kanal
alle Sicherungen T 3,15A

Deutsche Wurlitzer GmbH
Werk Hüllhorst:
Tel. (05744) 5050

Werk Levern:
Tel. (05745) 280

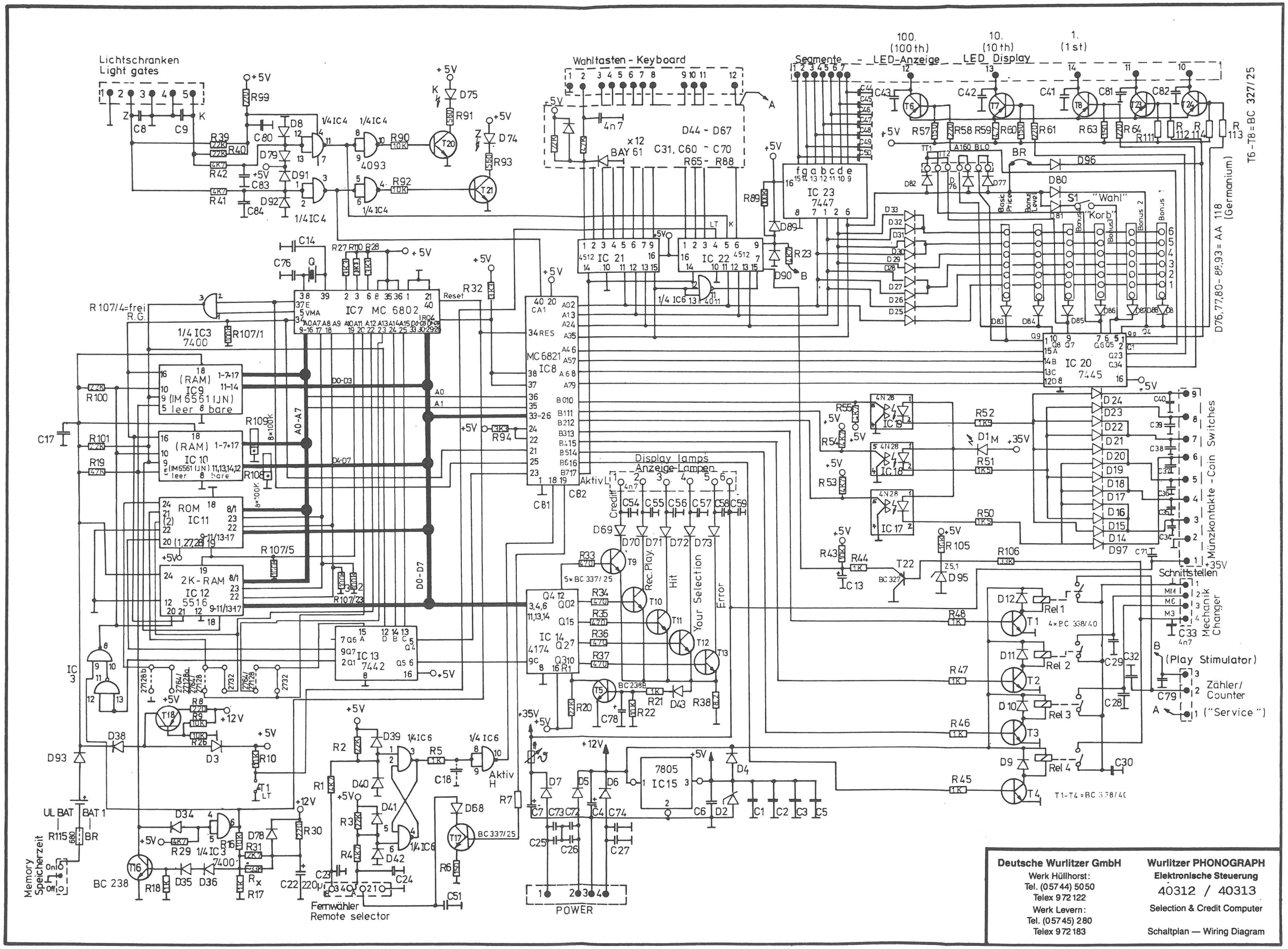
Wurlitzer PHONOGRAPH
Verstärker / Amplifier
Schaltplan/Diagram
4020000400S2

Änderungen vorbehalten!

0020540276

Liste der elektronischen Bauteile - List of electronic parts

Pos.-Nr.	Benennung / Denomination	Bestelldaten / Producers Code	Art.-Nr. Part No.
D 1, 74, 75	Leuchtdiode / LED 50 mA rot	Valvo C Q Y 24	00 04 050 018
D 2	Diode Si Z 5 V 6 1,3 W		00 04 050 022
D 3, 8 - 12, 14 - 24, 24 - 36, 38 - 73, 78, 79, 89 - 94	Diode Si 100 V 150 mA	ITT 1 N 4446/Siemens BAY 61	00 04 050 005
D 4 - 7	Diode Si 400 V 1 A	ITT 1 N 4004	00 04 050 009
D 25 - 33, 76, 77, 80 - 88	Diode Ge	AA 118	00 04 050 027
D 95	Diode Si Z 5 V 1 400 mA	ITT Z P D	00 04 050 023
C 1 - 3, 5, 17, 80	Kondensator 47 nF 32 V R 5		00 11 080 046
C 4	Elko 2200 µF 25 V R 45		00 11 060 090 (115)
C 7	Elko 220 µF 63 V R 35		00 11 060 021
C 8, 9, 23, 24, 27, 30, 31, 34 - 51, 54 - 59, 60 - 70	Kondensator 4,7 nF 100 V R 5		00 11 080 045
C 21	Elko 2,2 µF 16 V Tantal		00 11 060 163
C 22	Elko 220 µF 16 V R 22		00 11 060 039
C 25, 28, 29, 32, 33, 71	Kondensator 4,7 nF 400 V Keramik		
C 72 - 74	Kondensator 1 µF 100 V		
IC 3	IC 4-Nand-Gatter	Texas SN 7400 N	00 09 060 080
IC 4	IC Schwellwertschalter/Smith trigger	Motorola MC 14 093	00 09 060 095
IC 6	IC 4-Nand-Gatter	Motorola MC 14 011 P	00 09 060 071
IC 7	IC MPU Mikropr. Zentraleinheit	Motorola MC 6802 P	00 09 060 079
IC 8	IC PIA Mikropr. Ein- u. Ausgabeeinheit	Motorola MC 6821	00 09 060 064
IC 9 + 10	IC RAM Arbeitsspeicher	Intersil IM 6561	00 09 060 066
alternativ			
IC 12	IC RAM Arbeitsspeicher	Toshiba 5516 A PL 149	00 09 060 149
IC 11	EPROM Programmspeicher MBox 5.0		40 312 011 00 *)
IC 13	IC Dezimal-Decoder	Texas SN 7442 N	00 09 060 067
IC 14	IC 6-D-Flipflop	Motorola MC 14 174 B	00 09 060 070
IC 15	IC Spannungsregler/Voltage regulator 5 V	Motorola MC 7805 P	00 09 060 076
IC 17 - 19	IC Optokoppler	Motorola 4 N 28	00 09 060 062
IC 20	IC Dezimal-Dekoder	Texas SN 7445 N	00 09 060 073
IC 21 + 22	IC 8-Kanal-Multiplexer	Motorola MC 14 512 CP	00 09 060 072
IC 23	IC 7-Segment -Dekoder	Texas SN 7447 N	00 09 060 074
Q	Quarz HC 18 K, 4 MHz		00 17 010 001
R 1, 4, 23, 29, 41, 42, 53 - 55, 65 - 75,87,98	Widerstand/Resistor 4,7 KOhm 1/5 W 5% R 10		00 26 150 057
R 2, 3, 20, 76 - 86 88, 89, 100, 101	Widerstand/Resistor 22 KOhm 1/5 W 5% R 10		00 26 150 065
R 5, 7, 15, 17, 18, 21 44 - 48	Widerstand/Resistor 1 KOhm 1/5 W 5% R 10		00 26 150 049
R 6, 57, 60, 63	Widerstand/Resistor 150 Ohm		00 26 150 039
R 8, 30, 58, 61, 64, 99	Widerstand/Resistor 220 Ohm 1/5 W 5% R 10		00 26 150 041
R 9, 10, 11, 13, 14, 16 22, 26, 43, 90, 92	Widerstand/Resistor 10 KOhm 1/5 W 5% R 10		00 26 060 066
R 12, 19	Widerstand/Resistor 47 KOhm 1/5 W 5% R 10		00 26 150 069
R 27, 28, 32, 94, 97	Widerstand/Resistor 3,3 KOhm 1/5 W 5% R 10		00 26 150 055
R 31	Widerstand/Resistor 2,7 KOhm 1/5 W 5% R 10		00 26 150 054
R 33 - 37	Widerstand/Resistor 470 Ohm 1/5 W 5% R 10		00 26 150 045
R 38	Widerstand/Resistor 8,2 Ohm 1/5 W 5% R 10		
R 39, 40	Widerstand/Resistor 22 KOhm 1/5 W 5% R 10		00 26 150 065
R 49	Widerstand/Resistor 1,5 KOhm 1/2 W 5% R 15		00 26 040 006
R 50 - 52	Widerstand/Resistor 1,5 KOhm 1/5 W 5% R 10		00 26 150 051
R 56, 59, 62	Widerstand/Resistor 4,7 Ohm 1/5 W 5% R 10		00 26 150 021
R 91, 93	Widerstand/Resistor 560 Ohm 1/5 W 5% R 10		00 26 150 046
R 107	5-fach Widerstand/5-fold resistor 100 KOhm 1/8 W		00 26 130 573
R 108, 109	8-fach Widerstand/8-fold resistor 100 KOhm 1/8 W		00 26 130 873
Rel 1 - 4	Relais 12 V 1 A	Haller H 546 300 Ohm	00 18 010 043
BAT 1	Lithiumzelle	CR 2430	00 02 080 006
S 1	Schiebeschalter/Slide switch 1 U	Knitter MFP 221 N	00 20 460 030
S 2	Tastschalter/Push button	Schöller 4120	00 20 420 077
T 1 - 4, 17	Transistor Si npn	Siemens BC 338-40	00 23 110 055
T 5, 15, 16, 20, 21	Transistor Si npn	Siemens BC 238 B	00 23 110 051
T 6 - 8, 22	Transistor Si pnp	Siemens BC 327-25	00 23 110 053
T 9 - 13	Transistor Si npn	Siemens BC 337-25	00 23 110 056
T 14, 18	Transistor Si pnp	Siemens BC 308 B	00 23 110 054
	Kaltleiter/PTC-resistor 1,8 Ohm 66 V		00 26 110 014


Lichtschranken
Light gates
Wahltasten - Keyboard
Segmente
100.
(100th)
LED-Anzeige
10.
(10th)
LED Display
1.
(1st)
T6-T8=BC 327/25
D76,77,80-89,93=AA 118 (Germanium)
IC7 MC 6802
MC6821 IC8
IC 21 4512
IC 22 4512
IC 23 7447
IC 20 7445
IC9 (RAM) (IM 6551IJN) leer bare
IC 10 (RAM)
ROM IC11
2K-RAM IC 12 5516
IC 13 7442
IC 14 4174
1/4 IC3 7400
1/4 IC4
4093
1/4 IC6
4011
7805 IC15
R 107/4=frei R.G.
A0-A7
D0-D3
D4-D7
D0-D7
Reset
Display lamps
Anzeige-Lampen
Credit
Rec. Play
Hit
Your Selection
Error
5×BC 337/25
4N28
IC 19
IC 18
IC 17
Münzkontakte - Coin Switches
Schnittstellen
Mechanik Changer
(Play Stimulator)
Zähler/ Counter
("Service")
4×BC 338/40
T1-T4=BC 338/40
Rel 1
Rel 2
Rel 3
Rel 4
"Wahl"
"Korb"
Basic Price
Bonus Level
Bonus 1
Bonus 2
Bonus 3
Aktiv L
Aktiv H
Fernwähler
Remote selector
POWER
Memory Speicherzeit
On
Off
UL BAT
BAT 1
BR
BC 238
BC 337/25
BAY 61
D44 - D67
C31, C60 - C70
R65 - R88
+5V
+12V
+35V

Deutsche Wurlitzer GmbH
Werk Hüllhorst:
Tel. (05744) 5050
Telex 972 122
Werk Levern:
Tel. (05745) 280
Telex 972 183

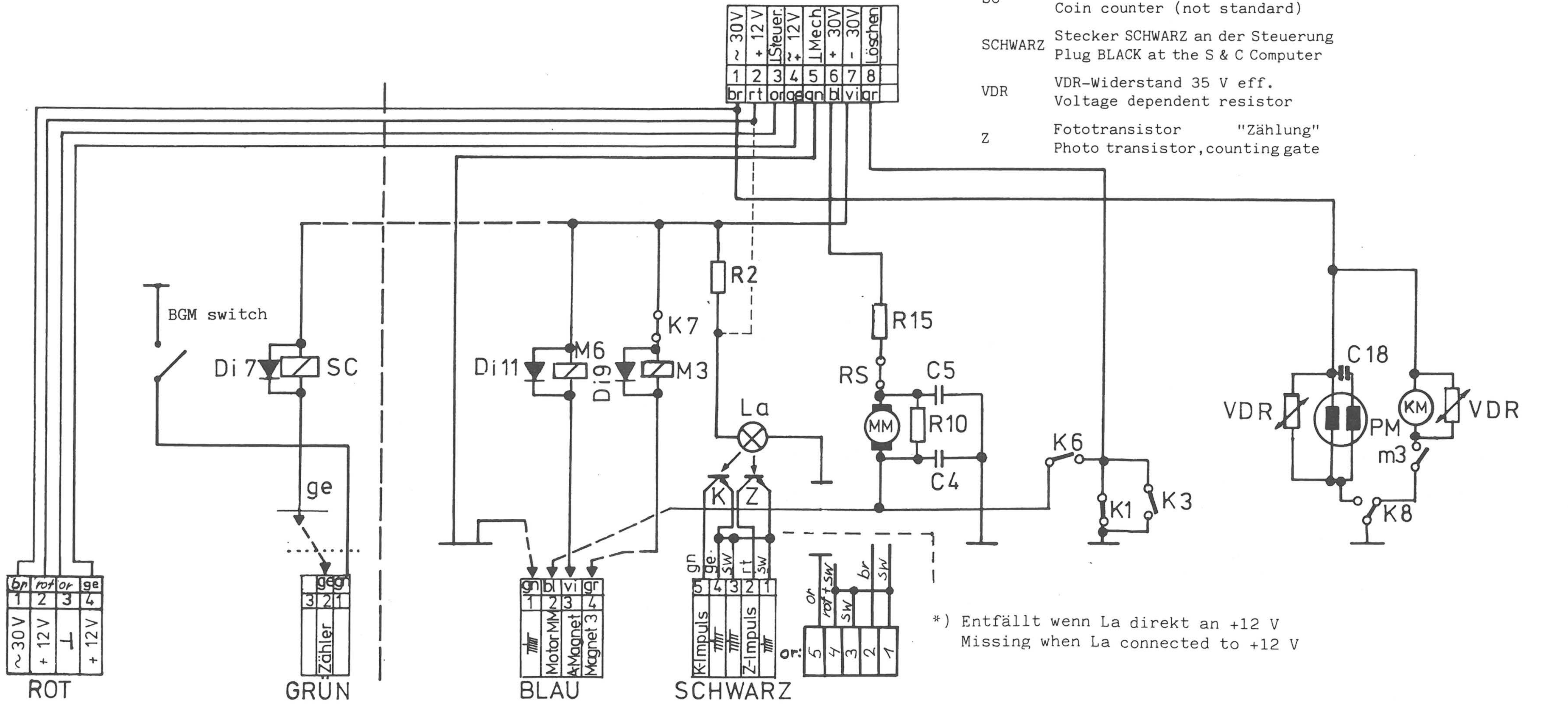
Wurlitzer PHONOGRAPH
Elektronische Steuerung
40312 / 40313
Selection & Credit Computer
Schaltplan — Wiring Diagram

Änderungen vorbehalten!
00205402 70
4. 87

BLAU	Stecker BLAU an der Steuerung Plug BLUE at the S & C Computer	
C 4, 5	Kondensator Capacitor	47 nF, 100 V
C 18	Kondensator Capacitor	8,2 µF, 63 V
Di 7 - Di 11	Siliziumdiode Silicon diode	200 V, 1 A
GRÜN	Stecker GRÜN an der Steuerung Plug GREEN at the S & C Computer	
K	Fototransistor "Kennung" Photo transistor sensing "101"	
K 1	Spielschalter (Schleifkontakt) Play switch (Contact wiper)	
K 3	Tonarm-Endschalter Tone arm trip switch	

K 6	Selbsthalteschalter für MM Transfer switch for motor MM	
K 7	Trennschalter am Getriebe M3/K2 isol. switch (gear box)	
K 8	Greifarm-Endschalter Gripper arm trip switch	
KM	Korbmotor (Plattenkorbantrieb) Record carrier motor (Magazine)	
La	Lampe 24 V, 3 W (Lichtschranke) Lamp 24 V, 3 W (Light gates)	
M 3	Magnet der Korbraste Carrier latch solenoid	16 Ohm
m 3	Schalter am Rastmagnet M 3 Switch with M 3 latch solenoid	
M 6	Greifarm-Umlenkmagnet A-Seite Gripper arm A-side solenoid	

MM	Getriebemotor Gear & cams motor	
o.V. n.c.	ohne Verbindung no connection	
PM	Plattenspielermotor Turntable motor	
ROT	Stecker ROT an der Steuerung Plug RED at S & C Computer	
R 2 *)	Widerstand Resistor	220 Ohm, 4 W
R 10	Widerstand Resistor	47 Ohm, 9 W
R 15	Widerstand Resistor	18 Ohm, 9 W
RS	Reparaturschalter Service switch	
SC	Münzzähler (nicht serienmäßig) Coin counter (not standard)	
SCHWARZ	Stecker SCHWARZ an der Steuerung Plug BLACK at the S & C Computer	
VDR	VDR-Widerstand 35 V eff. Voltage dependent resistor	
Z	Fototransistor "Zählung" Photo transistor, counting gate	


~30V
+12V
⊥Steuer.
~+12V
⊥Mech.
+30V
-30V
Löschen
1 2 3 4 5 6 7 8
br rt or ge gn bl vi gr
BGM switch
Di 7
SC
ge
Di 11
M6
Di 9
M3
K7
R2
La
K
Z
R15
RS
C5
MM
R10
C4
K6
K1
K3
C18
VDR
PM
KM
VDR
m3
K8
br rot or ge
1 2 3 4
~30V
+12V
⊥
+12V
ROT
ge ge
3 2 1
Zähler
GRÜN
gn bl vi gr
1 2 3 4
Motor MM
A-Magnet
Magnet 3
BLAU
gn ge. sw rt sw
5 4 3 2 1
K-Impuls
Z-Impuls
SCHWARZ
or rot+sw sw br sw
or:
5 4 3 2 1

*) Entfällt wenn La direkt an +12 V
Missing when La connected to +12 V

Farbenkode: br = braun / brown gr = grau / grey sw = schwarz / black
Colour code: bl = blau / blue or = orange / orange vi = violett / violet
ge = gelb / yellow rs = rosa / pink ws = weiß / white
gn = grün / green rt = rot / red

Zugehörige, weitere Pläne:	Complementary Diagrams:
Geräteschaltplan / Wiring Diagram	41 220 000 02 G1
Verstärkerschaltplan / Amplifier Diagram	40 200 004 00 S1

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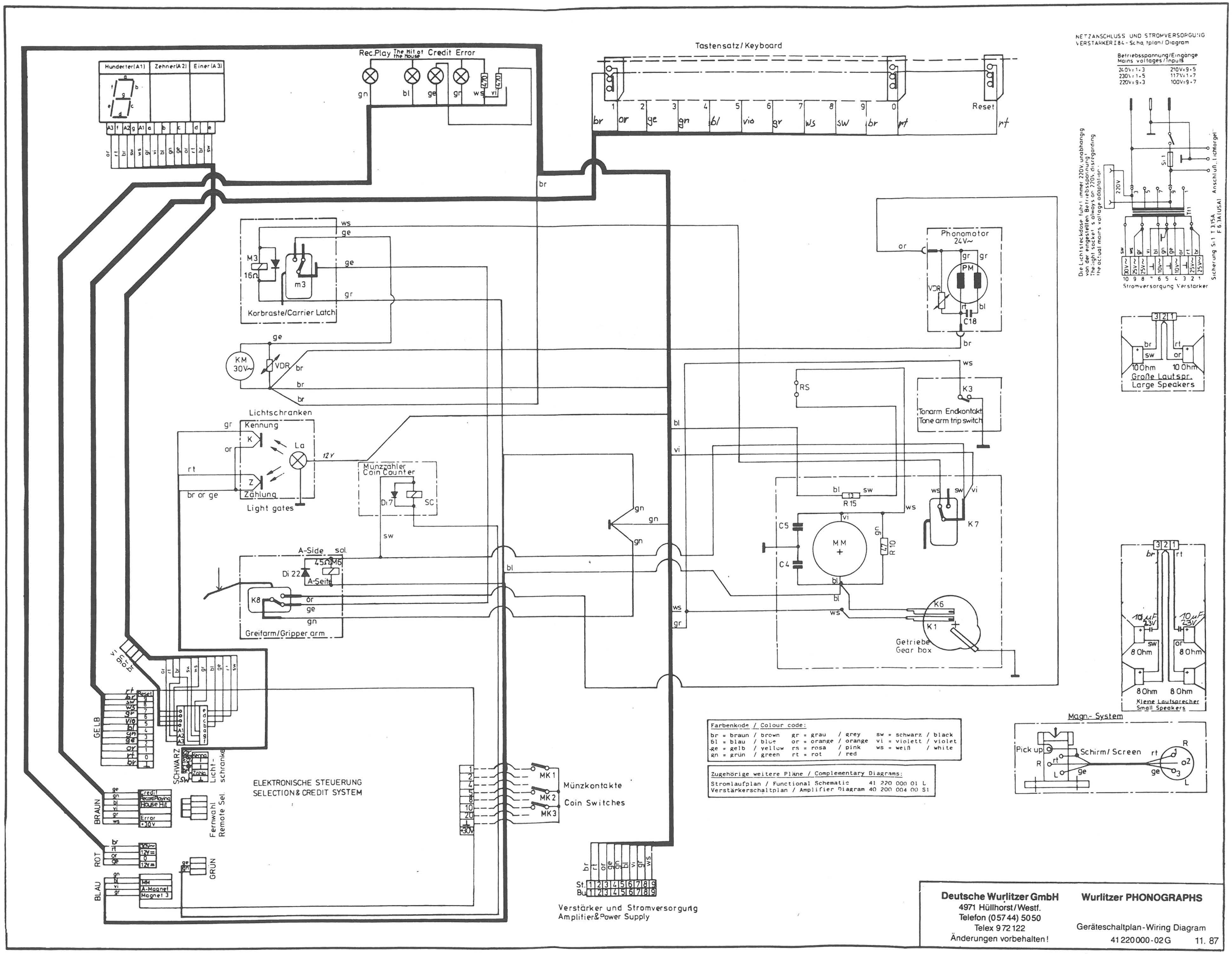
4971 Hüllhorst/Westf.
Telefon (05744) 5050

Änderungen vorbehalten!

Wurlitzer PHONOGRAPHS
Stromlaufplan-Functional Schematic
41 220 000 01 L 1

6. 86

Art.-Nr.: 00 205 402 74


Hunderter (A1)
Zehner (A2)
Einer (A3)
Rec.Play
The Hit of the House
Credit
Error
Tastensatz / Keyboard
Reset
NETZANSCHLUSS UND STROMVERSORGUNG VERSTARKER I84 - Schaltplan / Diagram
Betriebsspannung / Eingänge
Mains voltages / Inputs
240V = 1 + 3
230V = 1 + 5
220V = 9 + 3
210V = 9 + 5
117V = 1 + 7
100V = 9 + 7
Stromversorgung Verstärker
Sicherung Si 1 T 315A F 6.3A (USA)
Anschluß Lichtorgel
Phonomotor 24V~
PM
VDR
C18
M3 16Ω
m3
Korbraste / Carrier Latch
KM 30V~
VDR
Lichtschranken
Kennung
K
La
Z
Zählung
Light gates
12V
Münzzähler
Coin Counter
Di 7
SC
A-Side
sol.
45Ω
M6
Di 22
A-Seite
K8
Greifarm / Gripper arm
RS
K3
Tonarm Endkontakt
Tone arm trip switch
R15
C5
C4
MM
R10
K7
K6
K1
Getriebe
Gear box
Große Lautspr.
Large Speakers
10 Ohm
8 Ohm
Kleine Lautsprecher
Small Speakers
Magn.- System
Pick up
Schirm / Screen
GELB
SCHWARZ
BRAUN
ROT
BLAU
GRÜN
Licht-schranke
Fernwahl
Remote Sel.
ELEKTRONISCHE STEUERUNG
SELECTION & CREDIT SYSTEM
MK1
MK2
MK3
Münzkontakte
Coin Switches
Verstärker und Stromversorgung
Amplifier & Power Supply

Farbenkode / Colour code:

br = braun	/	brown	gr = grau	/	grey	sw = schwarz	/	black
bl = blau	/	blue	or = orange	/	orange	vi = violett	/	violet
ge = gelb	/	yellow	rs = rosa	/	pink	ws = weiß	/	white
gn = grün	/	green	rt = rot	/	red			

Zugehörige weitere Pläne / Complementary Diagrams:

Stromlaufplan / Functional Schematic	41 220 000 01 L
Verstärkerschaltplan / Amplifier Diagram	40 200 004 00 S1

Deutsche Wurlitzer GmbH
4971 Hüllhorst/Westf.
Telefon (05744) 5050
Telex 972122
Änderungen vorbehalten!

Wurlitzer PHONOGRAPHS

Geräteschaltplan - Wiring Diagram
41220000-02G 11. 87

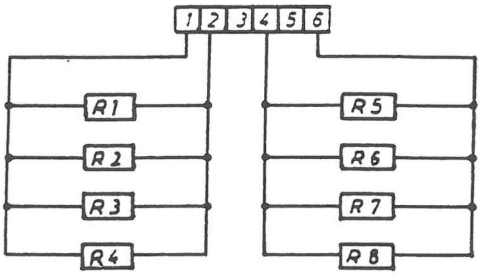
Art.-Nr. 00 205 402 75

Interface for bubble tubes 48 880 000 05

Plug 4

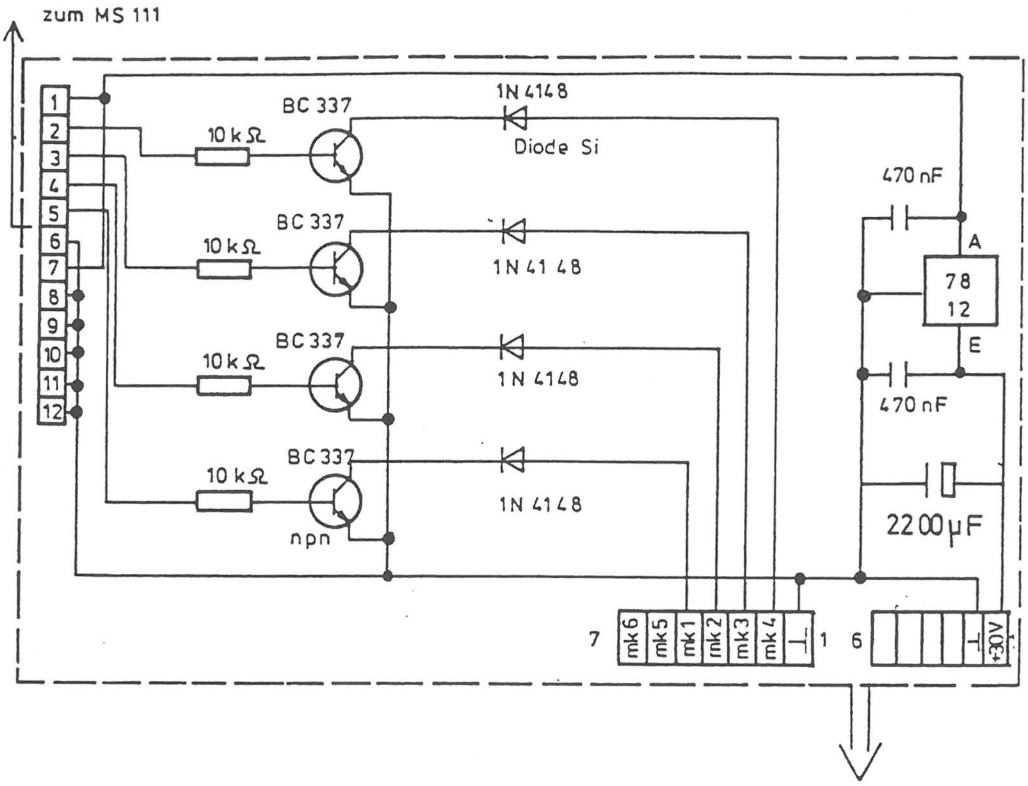
Interface 1015

Schaltplan 40 092 000 01(3)
Wiring Diagram

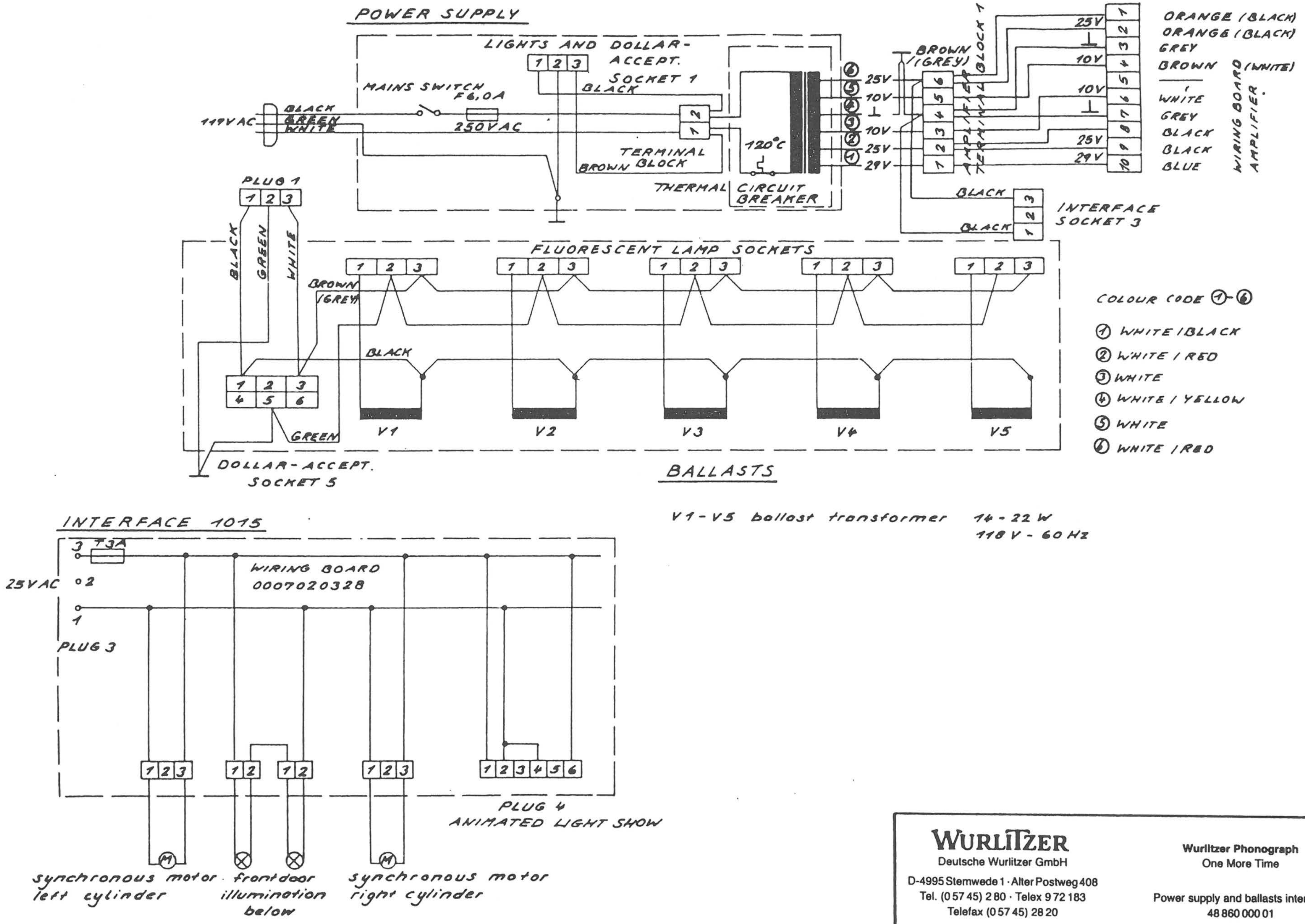

1
2
3
4
5
6
R1
R2
R3
R4
R5
R6
R7
R8

R1 - R8 = Heizwiderstände für Blasenröhren
Resistors for Bubble Tubes
120 Ohm 5W

Interface for electronic coin acceptor Type MMS 111 40 870 580 01


zum MS 111
1
2
3
4
5
6
7
8
9
10
11
12
BC 337
10 kΩ
1N 4148
Diode Si
BC 337
10 kΩ
1N 41 48
BC337
10 kΩ
1N 4148
BC 337
10 kΩ
1N 4148
npn
470 nF
A
78
12
E
470 nF
2200µF
7
mk6
mk5
mk1
mk2
mk3
mk4
⊥
1
6
⊥
+30V

S & C Computer
Coin Switches


POWER SUPPLY
LIGHTS AND DOLLAR-ACCEPT. SOCKET 1
1 2 3
BLACK
MAINS SWITCH
F6,0A
250VAC
119VAC
BLACK
GREEN
WHITE
TERMINAL BLOCK
BROWN
THERMAL CIRCUIT BREAKER
120°C
⑥ 25V
⑤ 10V
④
③ 10V
② 25V
① 29V
BROWN (GREY)
AMPLIFIER TERMINAL BLOCK 1
25V
10V
10V
25V
29V
ORANGE (BLACK)
ORANGE (BLACK)
GREY
BROWN (WHITE)
WHITE
GREY
BLACK
BLACK
BLUE
WIRING BOARD AMPLIFIER
BLACK
BLACK
INTERFACE SOCKET 3
PLUG 1
BLACK
GREEN
WHITE
BROWN (GREY)
FLUORESCENT LAMP SOCKETS
BLACK
GREEN
DOLLAR-ACCEPT. SOCKET 5
V1
V2
V3
V4
V5
BALLASTS
COLOUR CODE ①-⑥
① WHITE/BLACK
② WHITE/RED
③ WHITE
④ WHITE/YELLOW
⑤ WHITE
⑥ WHITE/RED
V1-V5 ballast transformer 14-22 W 118 V - 60 Hz
INTERFACE 1015
T3A
25VAC
3
2
1
PLUG 3
WIRING BOARD 0007020328
1 2 3
1 2
1 2
1 2 3
1 2 3 4 5 6
PLUG 4 ANIMATED LIGHT SHOW
M
M
synchronous motor left cylinder
front door illumination below
synchronous motor right cylinder

WURLITZER
Deutsche Wurlitzer GmbH
D-4995 Stemwede 1 · Alter Postweg 408
Tel. (0 57 45) 2 80 · Telex 9 72 183
Telefax (0 57 45) 28 20

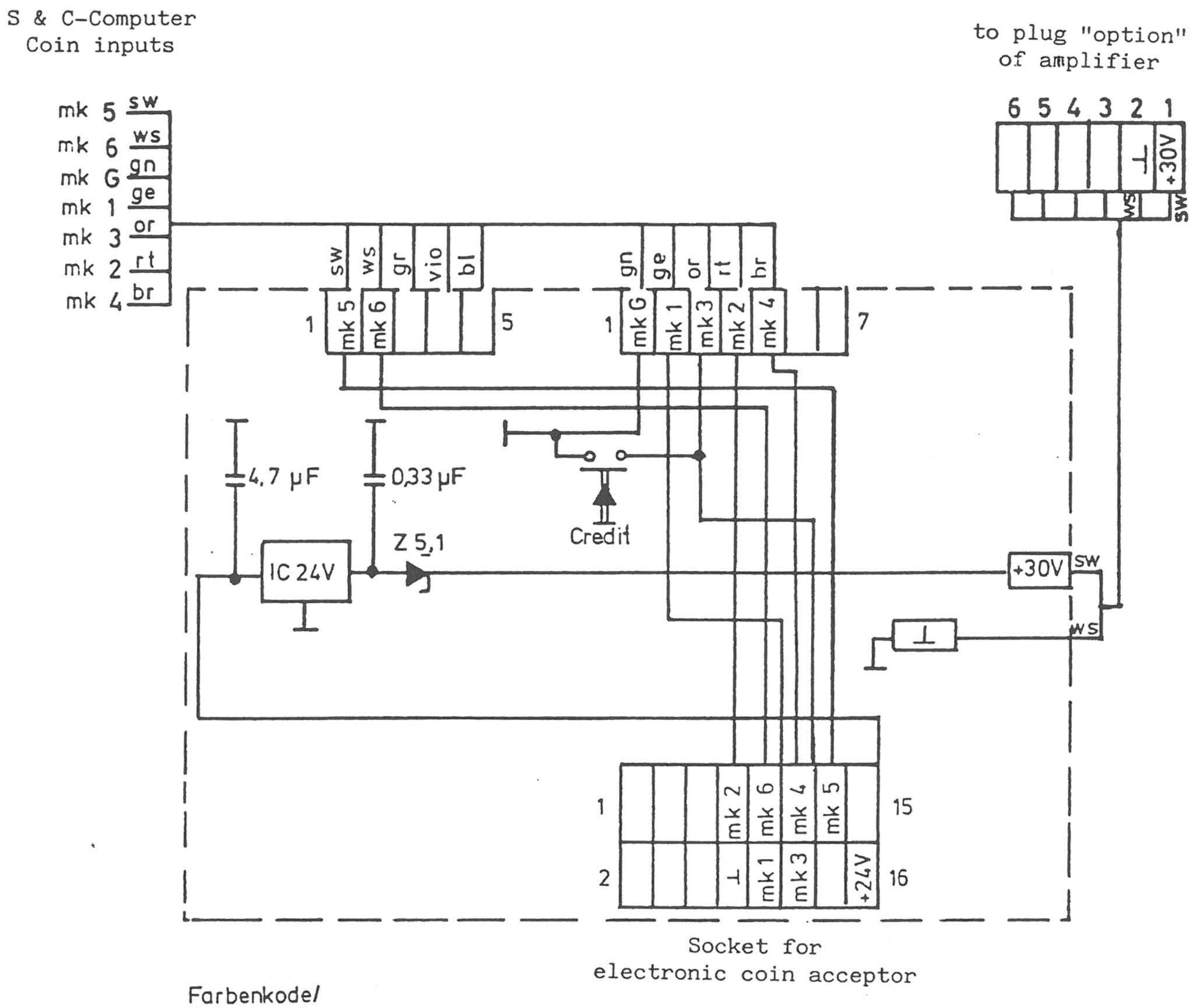
Wurlitzer Phonograph
One More Time

Power supply and ballasts interface
48 860 000 01

Änderungen vorbehalten

Interface for electronic coin acceptor MARS 130

43 840 580 01

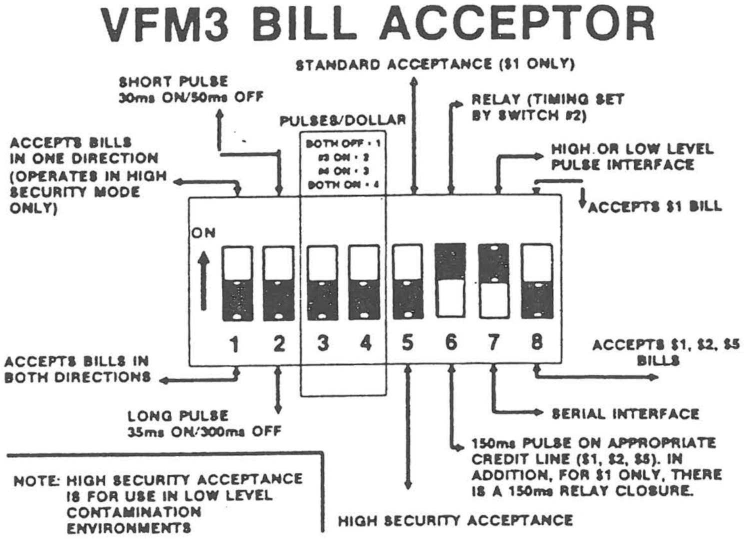

S & C-Computer
Coin inputs
mk 5 sw
mk 6 ws
mk G gn
mk 1 ge
mk 3 or
mk 2 rt
mk 4 br
sw
ws
gr
vio
bl
1
mk 5
mk 6
5
gn
ge
or
rt
br
1
mk G
mk 1
mk3
mk 2
mk 4
7
to plug "option"
of amplifier
6 5 4 3 2 1
⊥
+30V
ws
sw
4,7 µF
0,33 µF
Credit
IC 24V
Z 5,1
+30V
sw
ws
⊥
1
2
mk 2
mk 6
mk 4
mk 5
⊥
mk 1
mk3
+24V
15
16
Socket for
electronic coin acceptor

Farbenkode/
Colour code
br - braun - brown
ge - gelb - yellow
gn - grün - green
or - orange - orange
rt - rot - red
sw - schwarz - black
ws - weiß - white

One More Time with Bill Acceptor VFM 3

1) Set Bill Acceptor Option Switches

The bill acceptor option switches are factory pre-set as shown below. This allows for $1, $2 and $ 5 acceptance and bi-directional insertion of the dollar bill and High or Low Level interface (automatically configures from harness).

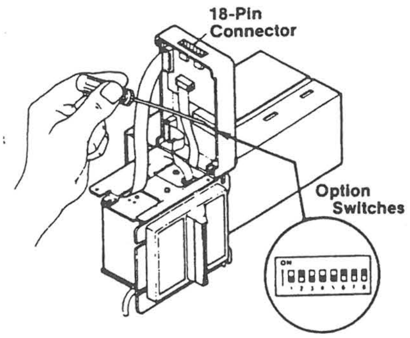

VFM3 BILL ACCEPTOR
STANDARD ACCEPTANCE ($1 ONLY)
SHORT PULSE 30ms ON/50ms OFF
PULSES/DOLLAR
BOTH OFF = 1
#3 ON = 2
#4 ON = 3
BOTH ON = 4
RELAY (TIMING SET BY SWITCH #2)
HIGH OR LOW LEVEL PULSE INTERFACE
ACCEPTS $1 BILL
ACCEPTS BILLS IN ONE DIRECTION (OPERATES IN HIGH SECURITY MODE ONLY)
ON
1
2
3
4
5
6
7
8
ACCEPTS BILLS IN BOTH DIRECTIONS
ACCEPTS $1, $2, $5 BILLS
LONG PULSE 35ms ON/300ms OFF
SERIAL INTERFACE
150ms PULSE ON APPROPRIATE CREDIT LINE ($1, $2, $5). IN ADDITION, FOR $1 ONLY, THERE IS A 150ms RELAY CLOSURE.
NOTE: HIGH SECURITY ACCEPTANCE IS FOR USE IN LOW LEVEL CONTAMINATION ENVIRONMENTS
HIGH SECURITY ACCEPTANCE

Option Switch Functions

NOTE: The Standard Accept Mode (switch #5 on) recognizes only bi-directional acceptance of the dollar bill, regardless of switch #1 setting.

* Disengage Control Board/Cover Assembly
  The bill acceptor option switches allow the unit to be customized to the installation. Locate the option switches by loosening the two (2) captive screws at opposite corners of the black cover and disengaging the Control Board/Cover Assembly.

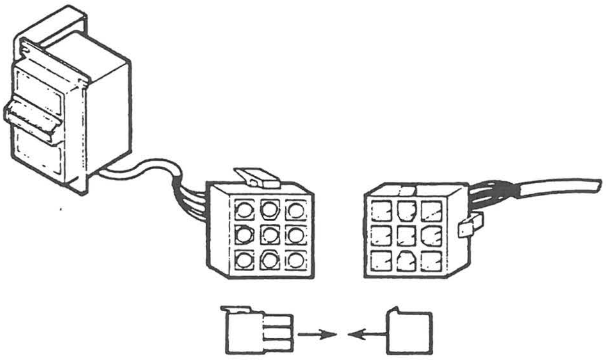
* Set the switches with a retracted ball point pen or small screwdriver. Do not use a graphite pencil point. Replace the Control Board when switches are set.


18-Pin Connector
Option Switches
ON

Setting the Option Switches

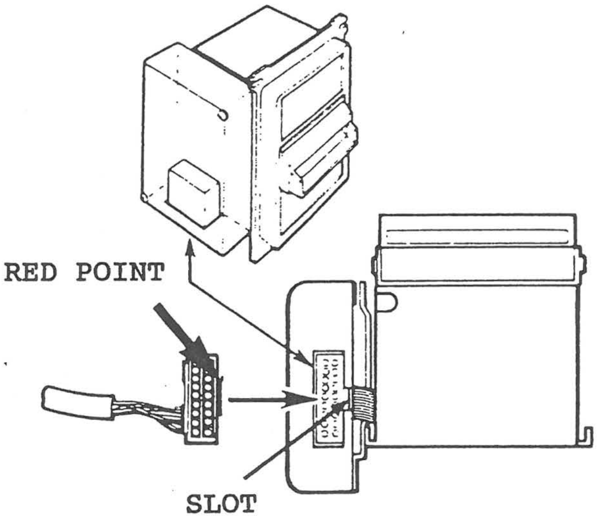
2) Connection of bill acceptor

a) Connect the harness with the 9pole plug to the bill acceptor.



Seating the 9-Pin Connector

b) Plug the 18pin connector in the control board as shown below:



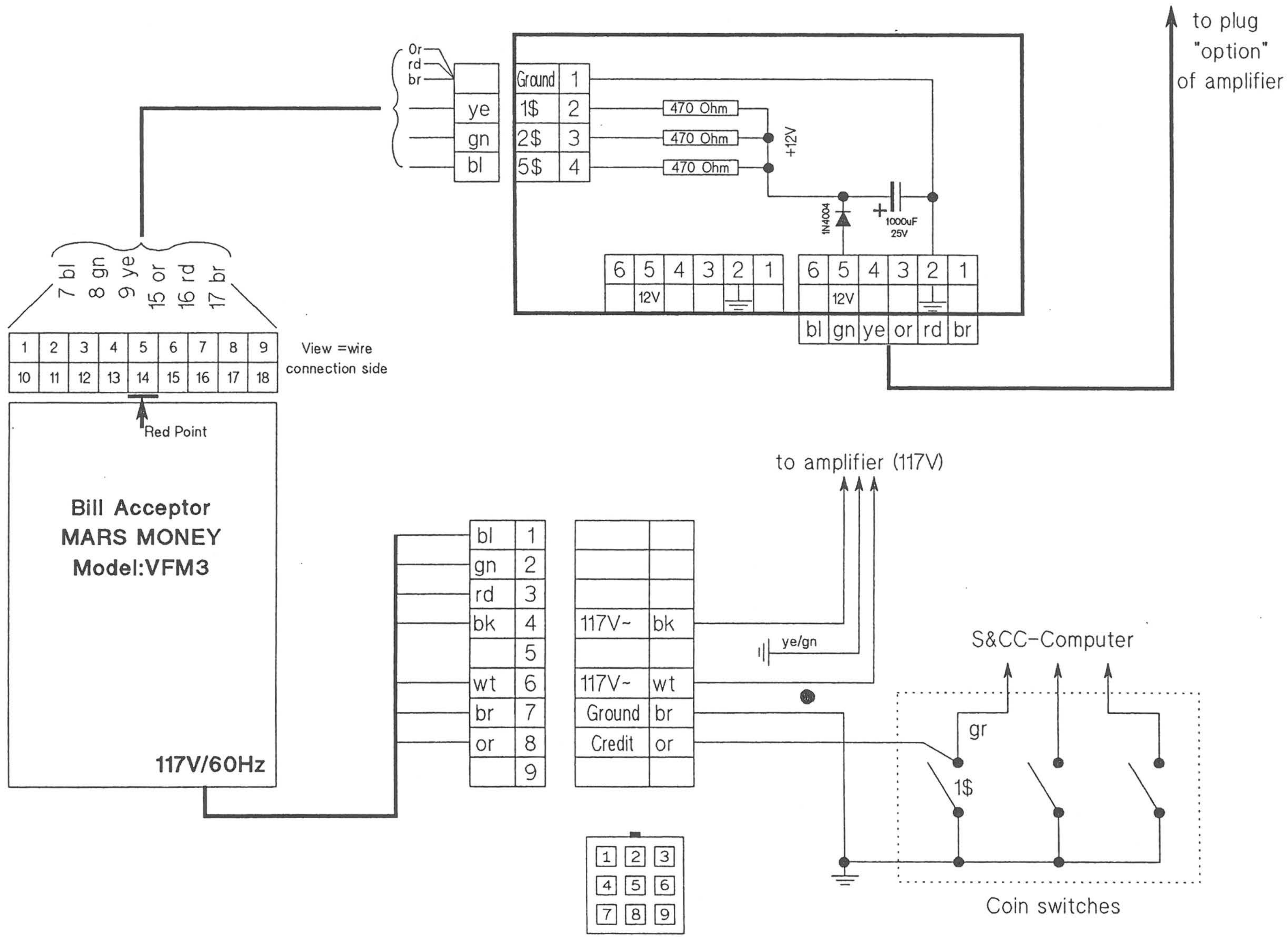
Seating the 18-Pin Connector

Attention!
Insert this 18pole connector the right way round! (No re-versing protection) Right way is with the connector's colour mark Red Point facing the same plane as the Bill Acceptor's manufacturer label, not facing to slot.
In case of mark getting lost: With the Bill Acceptor placed upright to normal working position and looking at its front, the group of six wires marks the rear end of the plug.

Interface 18-Pin Connector

Pin 1	N/C	Pin 10	N/C
Pin 2	N/C	Pin 11	N/C
Pin 3	N/C	Pin 12	N/C
Pin 4	N/C	Pin 13	N/C
Pin 5	N/C	Pin 14	N/C
Pin 6	ESCROW RETURN, High	Pin 15	S1 ENABLE, Low
Pin 7	S5 ENABLE, High	Pin 16	S2 ENABLE, Low
Pin 8	S2 ENABLE, High	Pin 17	S5 ENABLE, Low
Pin 9	S1 ENABLE, High	Pin 18	ESCROW RETURN, Low

Phonograph with Bill Acceptor Typ VFM 3 without stacker


to plug
"option"
of amplifier
Or
rd
br
ye
gn
bl
Ground 1
1$ 2
2$ 3
5$ 4
470 Ohm
470 Ohm
470 Ohm
+12V
1N4004
1000uF
25V
6 5 4 3 2 1
12V
6 5 4 3 2 1
12V
bl gn ye or rd br
7 bl
8 gn
9 ye
15 or
16 rd
17 br
1 2 3 4 5 6 7 8 9
10 11 12 13 14 15 16 17 18
View =wire
connection side
Red Point
Bill Acceptor
MARS MONEY
Model:VFM3
117V/60Hz
to amplifier (117V)
bl 1
gn 2
rd 3
bk 4
5
wt 6
br 7
or 8
9
117V~ bk
117V~ wt
Ground br
Credit or
ye/gn
S&CC-Computer
gr
1$
Coin switches
1 2 3
4 5 6
7 8 9

CHAPTER VI
Spare parts list

Table of Contents Page:

Front view 47-48

Front view 49-50

Front view 51-52

Inner door 53-54

Kit note acceptor 55

Turntable unit 56

Gripper arm group 57-58

Gear and cam group 59-60

Tone arm group 61-62

Record carrier 63-64

Amplifier 65-66

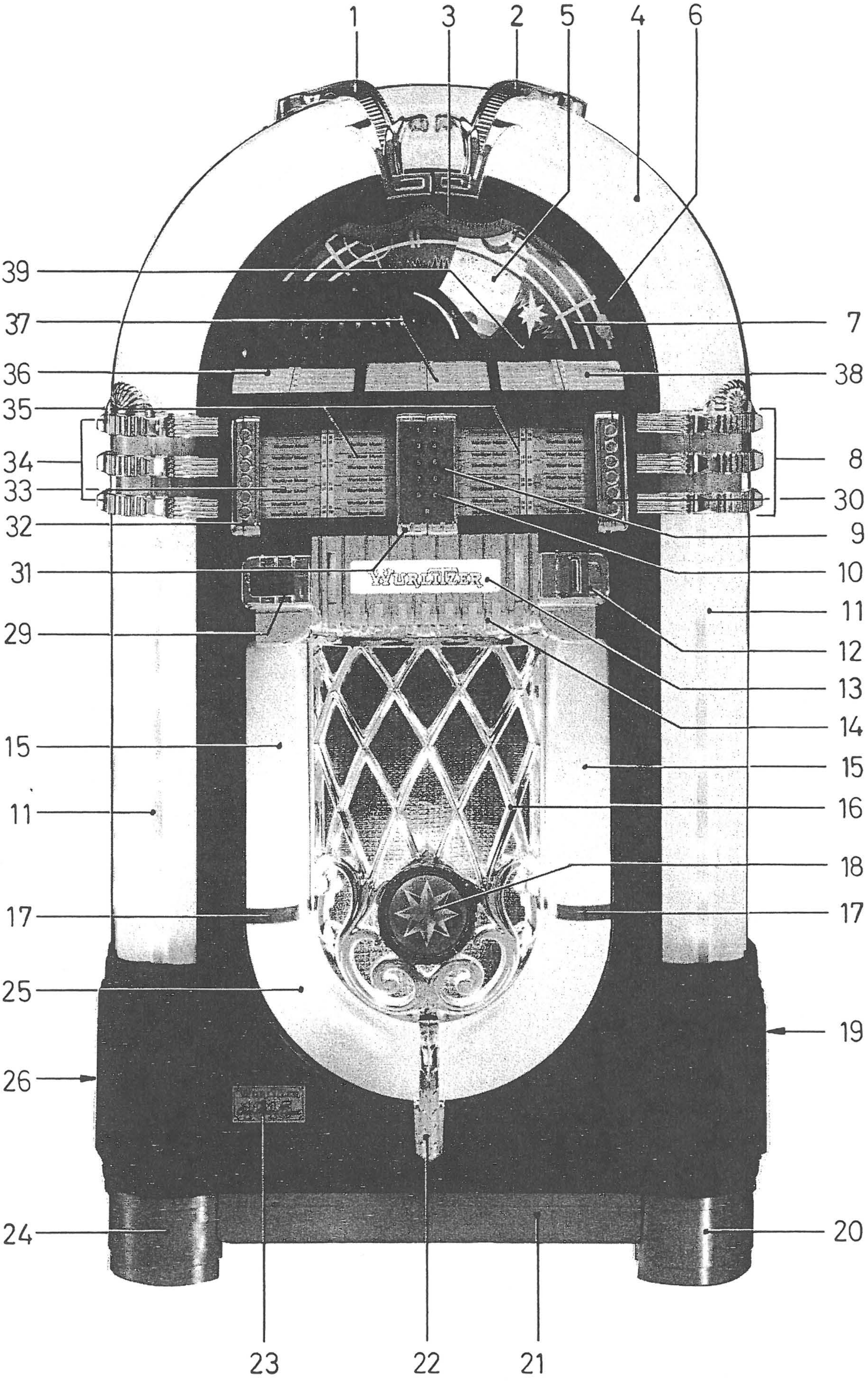
Amplifier p.-c. board 67-68

Computer parts 69-70

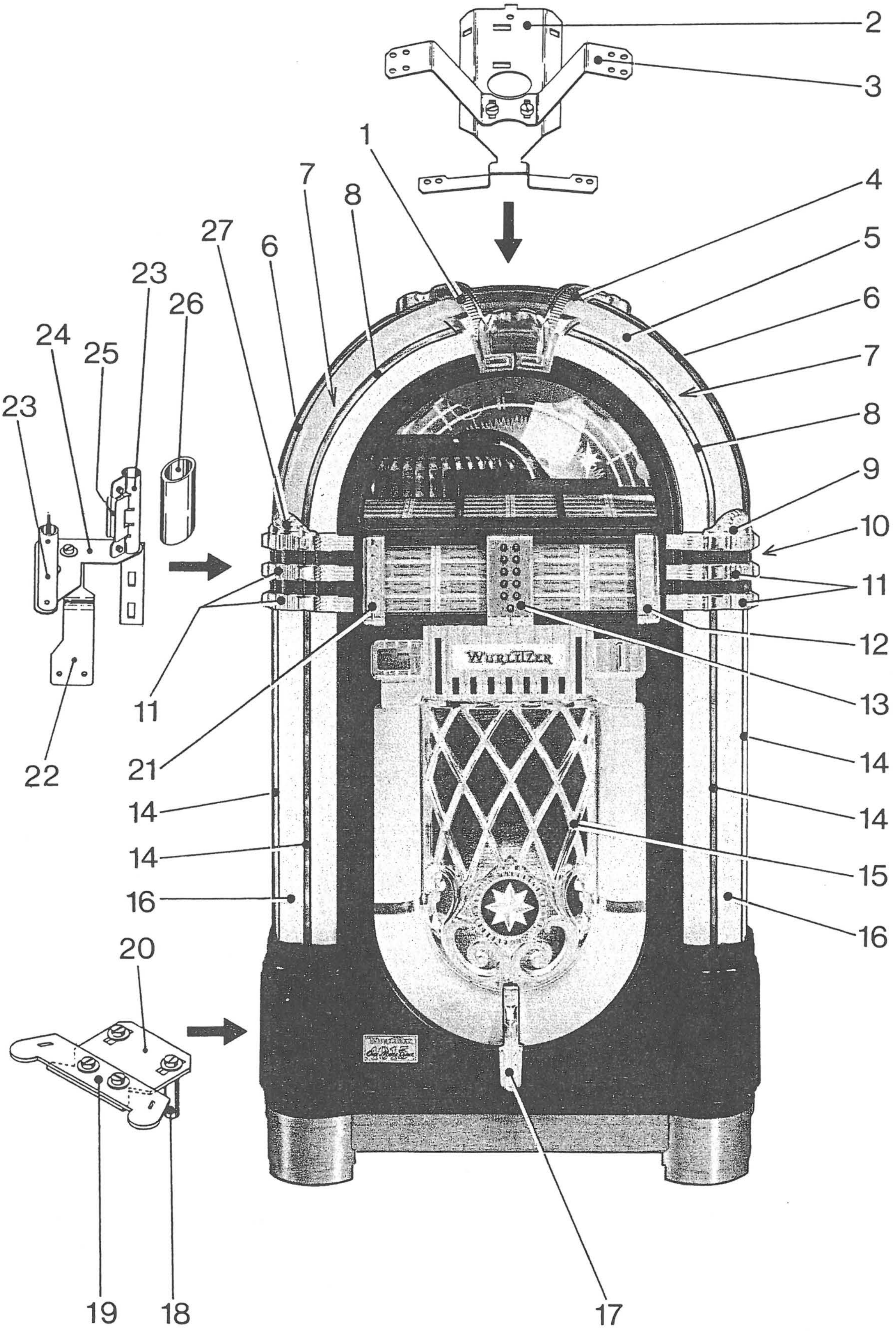
	Vorderansicht	Front View	Bestellnummer Part Number
1	Zierteil oben, links	Top trim, left	00 290 200 17
2	Zierteil oben, rechts	Top trim, right	00 290 200 18
3	Blende oben	Top screen, upper	00 070 903 53
4	Scheibe oben, bedruckt	Plastic trim	00 205 503 88
5	Folie bedruckt - Rückwand	Coloured film	00 062 000 78
6	Rahmen, Mitte	Side frame	00 070 903 52
7	Programmscheibe	Programme glass	00 205 503 92
8	Satz Zierteile, Mitte rechts	Top trim, right	00 290 200 20
9	Tastenblende	Keyboard cover	48 860 316 00
1o	Tastensatz 0-9, R	Key set 0-9, R	00 230 100 23
11	Scheibe außen, bedruckt	Plastic trim	00 205 503 91
12	Münzeinwurf	Coin slot piece	48 860 305 00
13	Wurlitzer-Schriftzug	Sign "Wurlitzer"	48 860 301 27
14	Zierteil - Münzschild	Coin entry escutcheon	00 290 200 21
15	Scheibe, Mitte bedruckt	Plastic trim	00 205 503 89
16	Ziergitter - Schallwand	Grille casting	00 290 200 22
17	Bogen	Cover	48 860 319 00
18	Zierschild Stern, bedruckt	Decorative disc	48 860 301 21
	Winkel	Bracket	48 860 301 45
	Lichtfolie	Plastic light diffuser	48 860 301 46
	Winkel	Bracket	48 860 301 47
19	Zierteil unten, rechts	Top trim, right	00 290 200 24
2o	Sockelprofil, rechts	Extrusion, right	48 860 300 10
21	Sockelprofil, unten	Extrusion, lower	48 860 300 12
22	Zierteil unten, Mitte	Grille plastic trim	00 290 200 23
23	One-More-Time-Schild	Coin return cup	00 205 300 35
24	Sockelprofil, links	Extrusion, left	48 860 300 11
25	Scheibe unten, bedruckt	Plastic trim, lower	00 205 503 90
26	Zierteil unten, links	Top trim, left	00 290 200 25
27			
28			
29	Münzeinwurfschild (Bei Bestellung Münzangabe)	Coin label	48 860 361 00
3o	Zierteil Tastenstreifen, rechts	Selector escutcheon, right	00 290 200 27
31	Zierteil Tastenstreifen, Mitte	Selector escutcheon, center	00 290 200 26
32	Zierteil Tastenstreifen, links	Selector escutcheon, left	00 290 200 28
33	Programmscheibe, unten	Program glass, lower	00 205 503 93
34	Satz Zierteile, Mitte links	Top trim, left	00 290 200 19
35	Programmtafel 4 Felder	Program holder 4 fields	48 860 310 07
36	Programmtafel 5 Felder	Program holder 5 fields	48 860 310 06
37	Programmtafel 6 Felder	Program holder 6 fields	48 860 310 05
38	Satz Programmstreifen	Label, set	00 160 000 54
39	Programmhalterabdeckung	Programme frame	48 860 312 00

Spare parts lists – Supplement

Trim parts:	Starting serial-no. 27o6 4771 the surface of the trim parts is chromium-plated. These parts are mounted in a different way. When ordering spare parts observe whether chromium-plated or lacquer coated parts are required. Parts numbers for chromium-plated parts see next page.
Bubble tubes:	Starting serial-no. 27o9 58oo the lamp strip of the animated light show no. 48 86o 335 oo are replaced by "bubble tubes". Three different bubble tubes are used. Also plastic trim parts, item 4 and 11 of front view are changed. New numbers see next page.



	Vorderansicht (Ergänzung)	Front View (complement)	Bestellnummer Part Number
1	Zierteil, oben links	Extrusion, upper door, left	00 290 200 17
2	Trägerwinkel	Mounting bracket	48 860 301 60
3	Stützwinkel	Support	48 860 301 61
4	Zierteil, oben rechts	Extrusion, upper door, right	00 290 200 18
5	Scheibe oben, bedruckt	Trim plastic, upper door	00 205 503 99
6	Bubble tube, 625 mm lang, gekrümmt	Bubble tube, length 625 mm, bent	00 020 001 32
7	Blende, innen	Plastic light diffuser	00 020 001 34
8	Bubble tube, 58o mm lang, gekrümmt	Bubble tube, length 58o mm, bent	00 020 001 31
9	Zierteil, mitte oben rechts	Extrusion, center right top	00 290 200 20
1o	Andruckplatte, innen (Makrolon)	Pressure plate, plastic	48 861 301 54
11	Zierteil, mitte rechts/links	Extrusion, center L.H./R.H.	00 290 200 29
12	Zierteil, Tastenstreifen, rechts	Selector escutcheon, right	48 861 386 00
13	Zierteil, Tastenstreifen, mitte	Selector escutcheon, center	00 290 200 26
14	Bubble tube, 762 mm lang, gerade	Bubble tube, length 762 mm, straight	00 020 001 30
15	Ziergitter, Schallwand	Grille, casting	48 860 362 00
16	Scheibe außen, bedruckt	Trim plastic, L.H./R.H.	00 205 504 00
17	Zierteil, mitte unten	Extrusion, center bottom	00 290 200 23
18	Distanzrohr 8 x 25 mm	Spacer tube	75 500 350 02
19	Halterplatte, unten rechts/links (Makrolon)	Fixing plate, bottom R.H./L.H. (plastic)	48 860 301 67
2o	Halter, unten rechts/links	Support, bottom R.H./L.H.	48 860 301 66
21	Zierteil, Tastenstreifen, links	Selector escutcheon, left	48 861 385 00
22	Halter, mitte links	Support, center left	48 860 301 62
	Halter, mitte rechts	Support, center right	48 860 301 64
23	Heizschelle	Heating clip	48 860 301 63
24	Halterplatte, mitte rechts/links (Makrolon)	Fixing plate, center R.H./L.H. (plastic)	48 860 301 65
25	Drahtwiderstand, 12o Ohm, 5 W	Resistor, 12o Ohms, 5 W	00 260 600 83
26	Siliconschlauch, 2o x 2 x 5o mm (Meterware)	Silicon tube, 2o x 2 x 5o mm (by the metre)	04 000 000 25
27	Zierteil, mitte oben links	Extrusion, center left top	00 290 200 19
	Umbausatz Zierteile vollst.	Reversion kit (trim parts compl.)	48 861 010 00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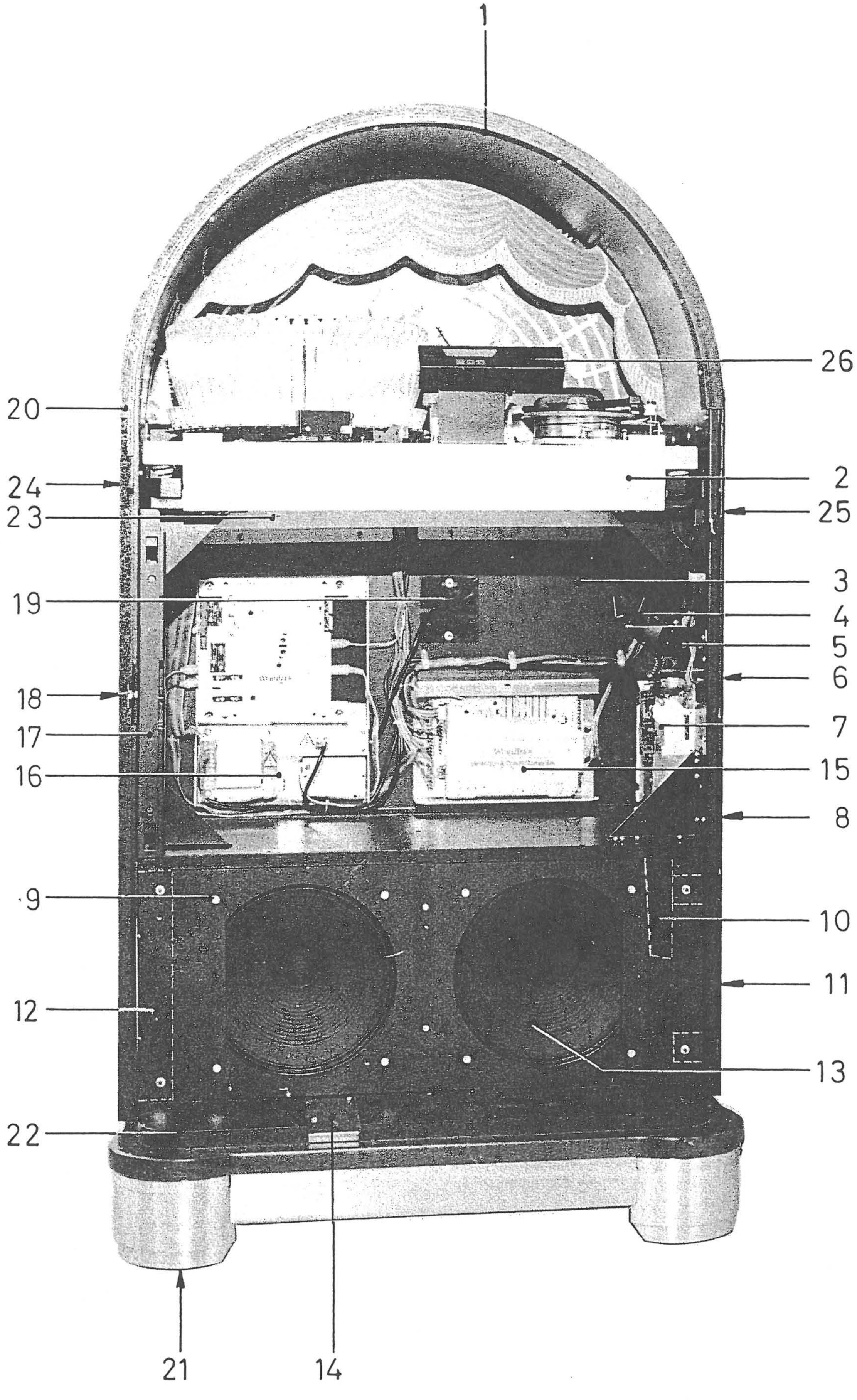
	Vorderansicht - geöffnet	Front View - open	Bestellnummer Part Number
1	Abdeckungsschiene	Cover rail	48 860 300 04
2	Sicherheitschiene	Protection bar	48 860 300 22
3	Rückwand, geschw.	Back door	48 860 365 00
4	Münzführung - Gehäuse	Coin track - cabinet	48 860 323 00
5	Haltewinkel	Support bracket	48 860 323 02
6	Münzrückgabehebel, vollst.	Coin return lever, complete	48 860 352 00
	Teller	Cup for coin return handle	48 860 352 00
7	Münzprüferschuh, vollst.	Rejector assembly, complete	48 860 439 00
	Münzprüferschuh, leer	Rejector assembly	80 002 041 02
	Drucktaster	Push button switch	00 040 000 12
	Arretierhebel	Latch lever	71 000 078 01
	Kontaktträger, vollst.	Coin switch, complete	46 860 440 00
	Kontakthebel	Coin paddle	00 111 700 01
	Münzprüferschuh EMP	Rejector assembly EMP	46 860 338 00
	Anschlußplatte EMP MS111	Interface EMP MS111	43 860 580 00
8	Rückgabebecher	Coin return cup	48 860 300 18
	Bügel	Clamp	10 000 830 01
	Rückgabeklappe	Coin return cup	43 000 300 28
	Winkel	Bracket	44 785 300 27
9	Schallwand, unten	Speaker board, lower	00 070 903 49
1o	Münzrinne Rückgeber-Kasse	Coin funnel to return cup	48 860 358 00
11	Kassendeckel (ohne Schloß)	Cash box door (without lock)	48 860 356 01
	Kassenrahmen	Frame, cash box door	48 860 300 19
	Kassenschloß und 2 Schlüssel	Lock with 2 keys	00 205 600 32
	Kassenbehälter	Coin bag housing	43 740 338 00
	Geldsack	Coin bag	46 700 369 00
12	Schallwandhalter	Sound board holder	48 860 317 00
13	Lautsprecher 1o Ohm, 3o W	Speaker 1o Ohms, 3o W	00 120 800 27
14	Auflagewinkel	Support bracket	48 860 300 03
15	Steuerung, vollst., 1oo/16o/2oo	Control unit, complete, 1oo/16o/2oo	40 306 000 00
	Deckel	Lid	44 788 370 03
	Verschluß beide Teile	Snap-in lock	00 250 000 42
	Abdeckkappe (Plastik)	Cover (plastic)	43 795 370 11
	Programmierdraht	Jumper wire	44 788 371 00
	Service-Schalter	Service switch	40 302 003 00
16	Verstärker I84 D	Amplifier I84 D	40 200 000 00
	Verstärker I84 USA	Amplifier I84 USA	40 210 000 00
17	Schließblech 1 fest	Lock plate 1	48 860 307 00
	Schließblech 2 verstellbar	Lock plate 2	48 860 308 00
	Schließriegel 3	Lock catch 3	48 860 309 00
18	Zylinderschloß WUA1	Lock WUA1	00 205 600 46
	Ersatzschlüssel	Spare key	00 050 000 08
	Schließhebel	Lock catch	48 860 300 02
19	Kunststoffdeckel	Cover (plastic)	43 840 300 10
2o	Gehäuse	Cabinet	00 070 402 14
21	Laufrollentopf	Roller foot mounting plate	00 120 000 52
22	Sockel, unten	Socket, lower	00 070 903 50
23	Zwischenboden	Intermediate panel	48 860 300 25
24	Zierleiste, links	Extrusion LH	48 860 320 00
25	Zierleiste, rechts	Extrusion RH	48 860 321 00
26	Wahl- und Spielanzeige	Indicator unit	43 840 305 00
	Befestigungsrahmen	Mounting frame	48 860 327 00
	Befestigungsblech	Mounting plate	48 860 327 03
	Befestigungsplatte	Mounting plate	48 860 327 04
	Rahmen - Kunststoff	Frame, plastic	00 180 000 97
	Fenster für Spielanzeige	Window	43 840 709 02
	Scheibe	Indicator glass	48 815 709 01
	Glühlampe 24 V, 3o mA	Lamp 24 V, 3o mA	00 070 00 32
	Lampenfassung	Lamp socket	00 060 400 47
	Gedr. Schaltung, vollst.	P.C. board, complete	43 840 310 00
	LED-Anzeige, rot	LED display, red	00 010 001 42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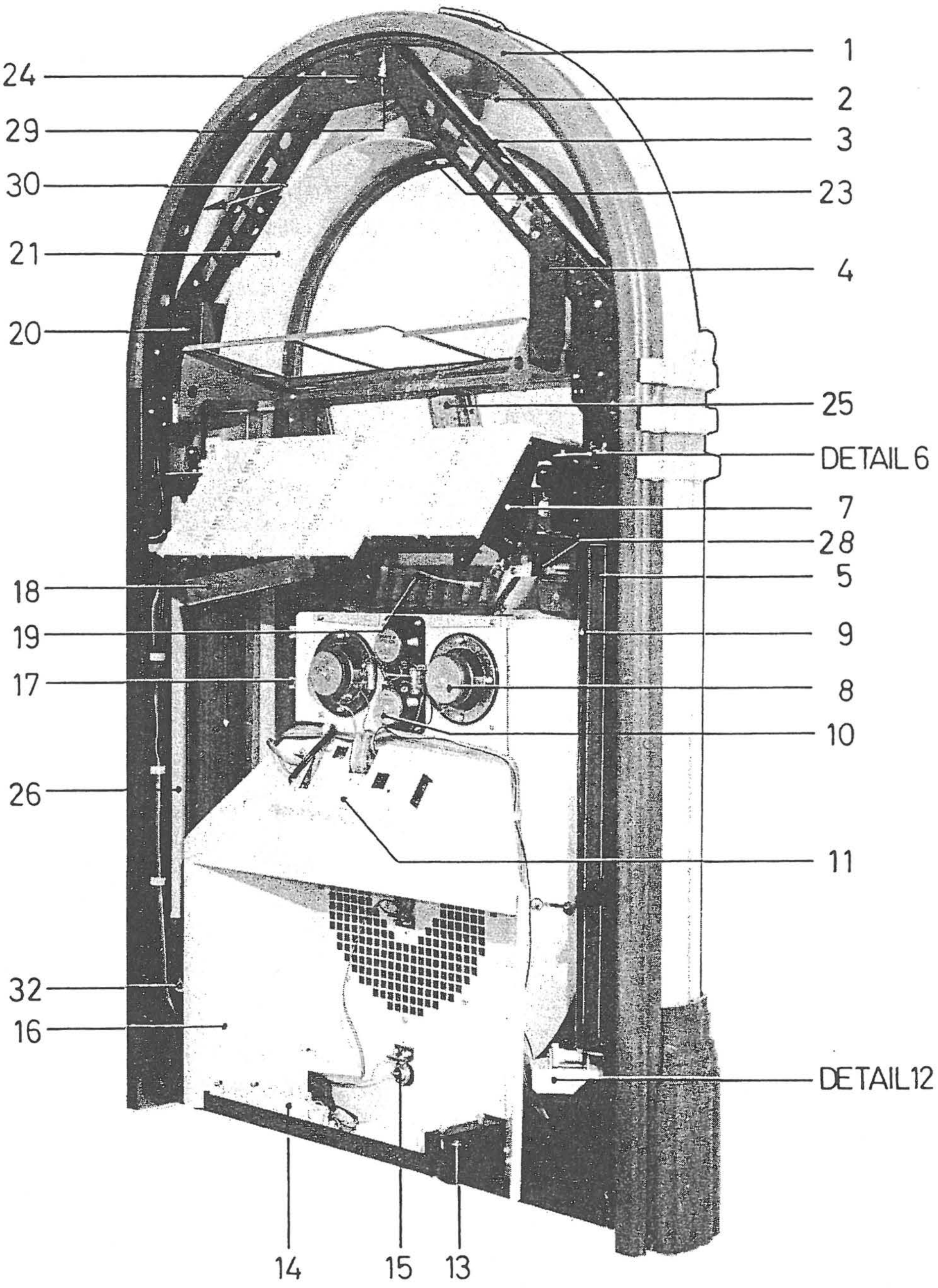
	Tür - innen	Door - inner	Bestellnummer Part Number
1	Rahmen, außen	Side frame	00 070 9o3 51
2	Lampenleiste, montiert	Lamp strip	48 860 335 00
	Glühlampen 24 V, R7	Lamp 24,V, R7	00 070 001 05
	Kabelbaumverbindung	Connecting loom	48 860 386 00
3	Leuchtstofflampe 15 W	Fluorescent 15 W	00 120 000 11
	Starter Tandem	Starter	00 220 000 13
	Starter 4-65 W	Starter 4-65 W	00 220 000 04
	Starter FS25 USA	Starter FS25 USA	15 736 500 00
	Lampenfassung	Holder for lamp	00 245 000 14
	Starterfassung	Holder for starter	00 245 000 15
4	Programmwinkel, rechts	Bracket, right	48 860 301 07
5	Leuchtstofflampe 18 W	Fluorescent 18 W	00 120 000 75
6.1	Führungsplatte	Guide plate	48 860 334 00
6.2	Laufrolle	Roller	00 120 000 78
6.3	Zugfeder o,36 x 3,8 x 19 mm	Tension spring	00 061 100 04
6.4	Rollenhalter	Roller bracket	48 860 333 05
6.5	Welle	Shaft	48 860 333 04
6.6	Lagerbolzen	Support bolt	00 020 401 69
6.7	Sicherungsscheibe 1,9 mm	Retaining ring 1,9 mm	00 190 300 14
6.8	Splint 1,5 x 12 mm	Cotter pin 1,5 x 12 mm	00 210 300 02
7	Programmhalter, geschw.	Program holder frame	48 860 329 00
8	Lautsprecher 8 Ohm, 1o W	Speaker 8 Ohms, 1o W	00 120 800 61
9	Rohr	Tube	48 860 331 01
	Folie, bedruckt	Coloured film	48 860 331 02
1o	Lautsprecher 8 Ohm, 5 W	Speaker 8 Ohms, 5 W	00 120 800 62
11	Abdeckung für Lichtorgel	Cover moving lights	48 860 328 01
	Gedr. Schaltung Lichtorgel, vollst.	P.C. board compl. light animation	40 092 107 00
	Gedr. Schaltung Interface, vollst.	P.C. board compl. interface	40 092 106 00
12.1	Motorwinkel	Motor bracket	48 860 330 01
12.2	Grundplatte	Support bracket	48 860 332 00
12.3	Schnecke	Worm screw	00 200 000 60
12.4	Lagerbolzen	Main shaft	00 020 400 94
12.5	Synchronmotor 24 V	Turntable motor 24 V	00 131 200 18
12.6	Schneckenrad	Gear wheel	00 200 000 36
12.7	Antriebsstück	Drive sleeve	00 010 000 98
12.8	O-Ring 1o x 4	Belt 1o x 4	00 150 100 07
12.9	Kondensator 8,2 µF	Capacitor	00 113 101 02
13	Rollenhalter	Roller bracket	48 860 301 02
	Rolle	Roll	00 180 000 68
	Bolzen	Bolt	00 020 401 18
14	Konsole für Vorschaltgerät USA	Ballast mounting plate	48 860 326 01
	Vorschaltgerät 14-22 W, 6o Hz USA	Lamp ballast 14-22 W, 6o Hz	15 905 100 00
	Vorschaltgerät 15 W, 5o Hz	Lamp ballast 15 W, 5o Hz	00 250 000 63
	Vorschaltgerät 4o W, 5o Hz	Lamp ballast 4o W, 5o Hz	00 250 000 64
	Vorschaltgerät 3o W, 5o Hz	Lamp ballast 3o W, 5o Hz	00 250 000 22
15	Lampenwinkel	Bracket lamp holder	48 860 311 01
	Glühlampe 24 V, 21 W	Lamp 24 V, 21 W	00 070 000 99
	Lampenfassung BA155	Lamp socket BA155	00 060 400 62
16	Lautsprecherhalter	Speaker board without speakers	48 860 318 00
17	Andruckleiste	Mounting bracket	48 860 300 15
18	Münzführung	Coin funnel	48 860 322 00
19	Abdeckung	Cover plate	48 860 301 53
2o	Programmwinkel, links	Bracket, left	48 860 301 08
21	Scheibe, innen	Window, inner	48 860 301 26
22			
23	Klemmstück	Pivot bracket	48 860 301 32
24	Rahmen, geschw.	Side frame	48 860 302 00
25	Tastenleiste, vollst.	Selector button keyboard, complete	48 860 314 00
	Tastenchassis	Keyboard chassis	48 860 314 04
	Gedr. Schaltung - Tastenstreifen	Printed circuit	48 860 316 00
	Kontaktmatte	Contact rubber	00 112 600 01
	Druckplatte	Thrust plate	48 860 314 02
	Distanzstück	Spacer	48 860 314 03
26	Andruckleiste, links unten	Mounting bracket, left	48 860 301 01
	Andruckleiste, rechts unten	Mounting bracket, right	48 860 301 03
28	Schilderhalter - Einwurf	Lable holder coin insert	48 860 301 30
29	Trägerwinkel	Support bracket	48 860 301 33
	Stützwinkel	Coin track support	48 860 301 34
3o	Scheibenandruckleiste	Window holder	48 860 301 38
31	Scheibenandruckwinkel	Glass mounting bracket	48 860 301 39
32	Befestigungswinkel, rechts	Fastener bracket, right	48 860 337 00
	Befestigungswinkel, links	Fastener bracket, left	48 860 338 00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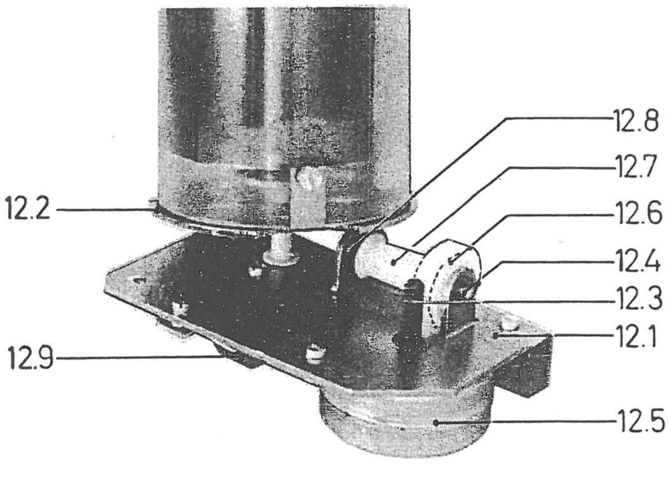
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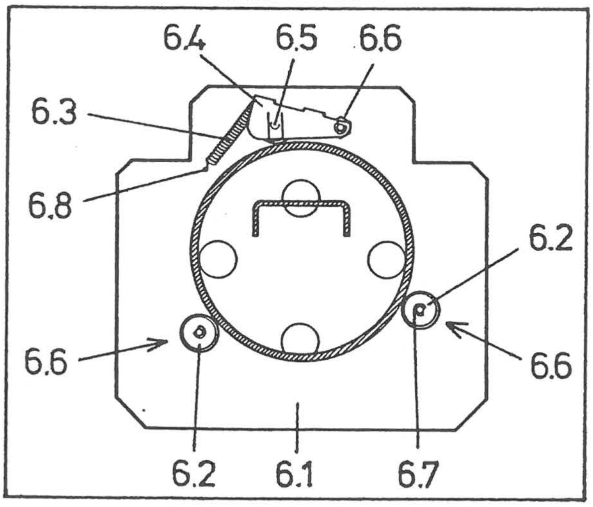
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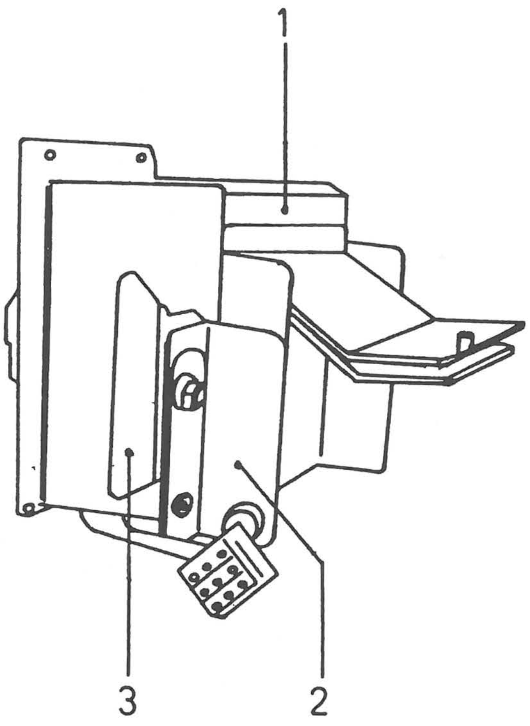
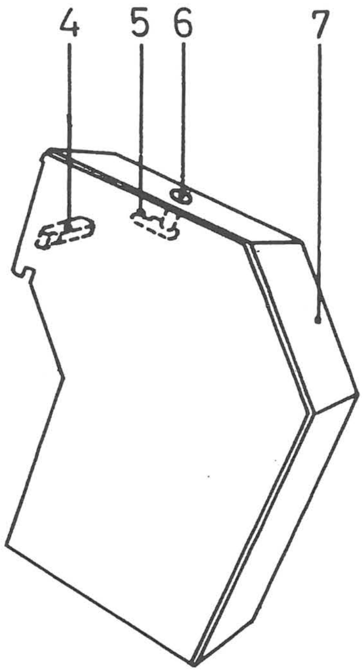
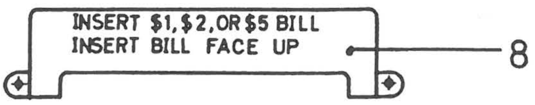
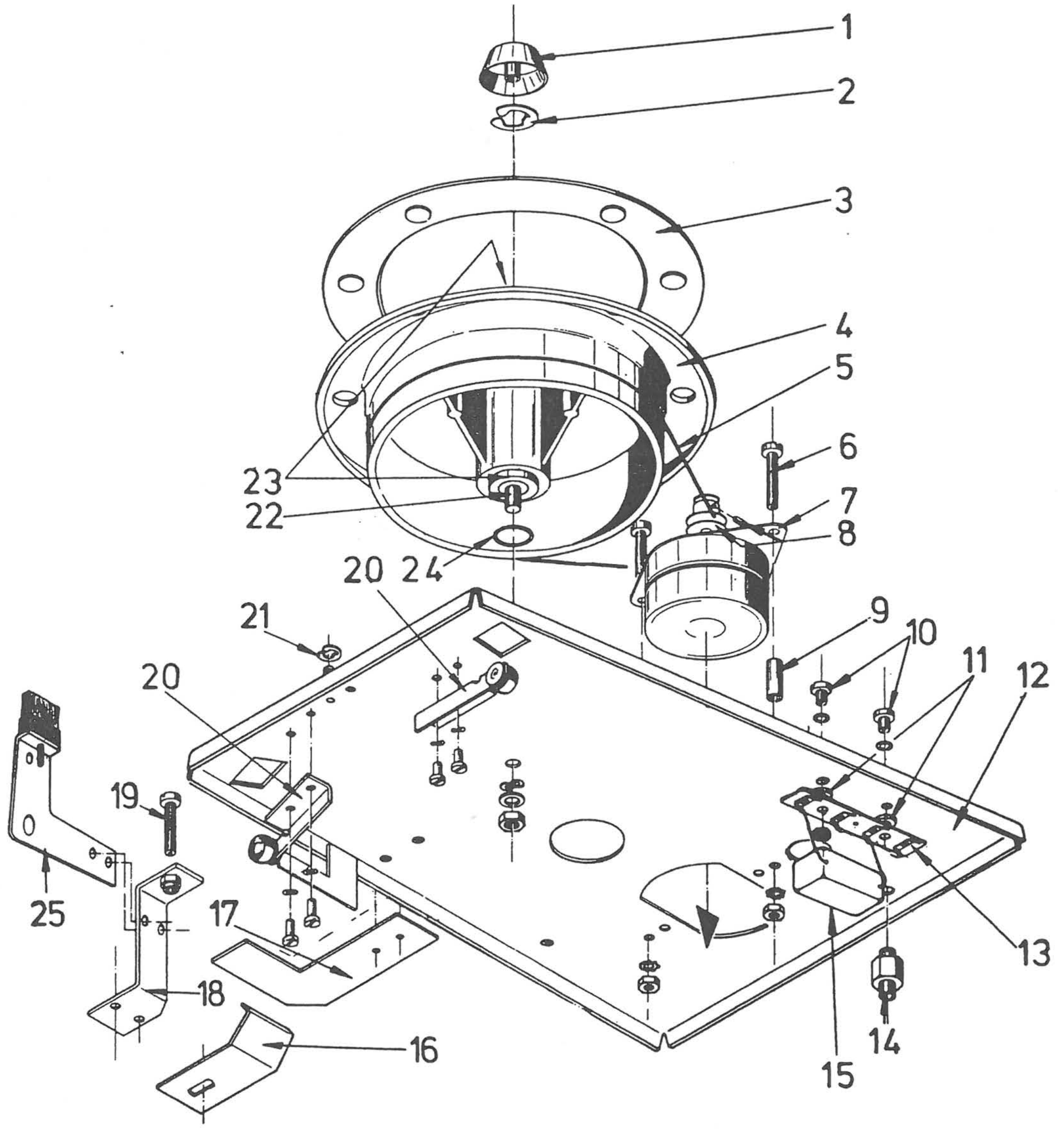
	Einbausatz Scheinannehmer	Mounting Kit Note Acceptor	Bestellnummer Part Number
1	Chassis Scheinannehmer, geschw.	Chassis for note acceptor	48 860 369 00
2.	Einstellblech,rechts/links	Adjustment plate, right/left	48 860 367 01
3	Stellblech, rechts/links, geschw.	Mounting plate, right/left	48 860 373 00
4	Magnetverschluß	Magnetic latch	00 132 000 13
5	Schließhebel	Catch, lock	00 205 601 15
6	Zylinderschloß (2 Schlüssel)	Lock (2 Keys)	00 205 600 03
7	Kasse, geschw.	Cash box	48 860 367 03
8	Blende für Scheinannehmer	Frame for note acceptor	48 860 367 03



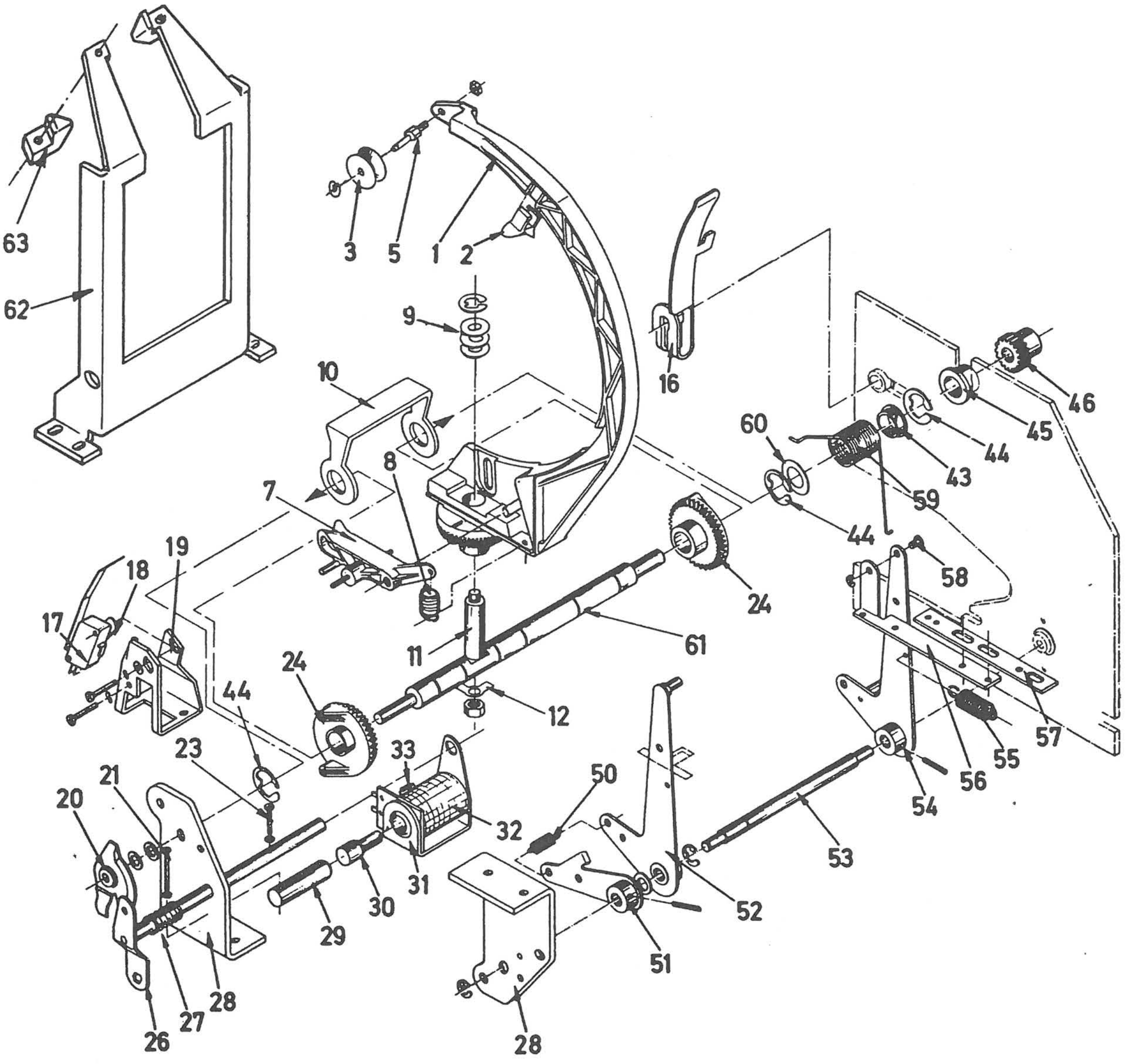


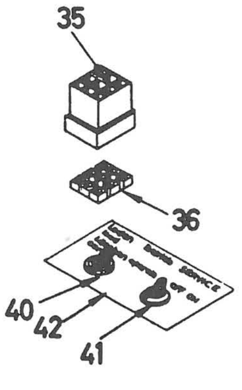


	Plattenspielergruppe	Turntable unit	Unité de tourne-disques	Bestellnummer Part Number
	Plattenspieler vollst. 50/60 Hz	Turntable unit compl. 50/60 Hz	Tourne-disques compl. 50/60 Hz	41 000 298 00
1	Abdeckkappe	Plastic cap	Capuchon plastique	00 010 001 01
2	Sicherungsscheibe 10 DIN 6799	Retaining ring 10 mm	Rondelle de sûreté 10 mm	00 190 300 12
3	Gummiauflage	Turntable rubber pad	Anneau caoutchouc	00 160 000 20
4	Plattenteller mit Lager	Turntable with sinter bearings	Plateau tourne-disques, palier	41 000 301 00
5	O-Ring 133 x 1,8	Belt	Courroie	00 150 100 10
6	Schraube M 3 x 20 DIN 84	Cyl.-head screw 3 x 20 mm	Vis M 3 x 20 DIN 84	00 202 003 20
7	Antriebsmotor 375 U 24 V	Turntable motor 375 rpm 24 V	Moteur tourne-disques	00 131 200 18
8	Antriebsscheibe 50 und 60 Hz	Drive pulley 50 and 60 Hz	Poulie 50 et 60 Hz	00 010 001 06
	Gewindestift M 3 x 4 DIN 916	Worm screw (Allen head) 3x4	Cheville filetée M 3 x 4	00 070 100 04
9	Distanzrohr	Spacer tube	Entretoise d'épaisseur	30 000 191 04
10	Zyl.-Blechschraube 2,9 x 9,5	Thread cutting screw 2,9 x 9,5	Vis en tôle 2,9 x 9,5 mm	00 202 229 95
11	Ausgleichsscheibe	Shim	Rondelle	00 010 600 09
12	Montageplatte	Chassis	Chassis	41 000 300 00
13	Lötleiste	Solder terminal strip	Barette de cosse	00 121 200 09
14	Gewindebolzen	Threaded bolt	Boulon filetée	00 020 400 96
	Sicherungsscheibe 5 DIN 6799	Retaining ring 5 mm	Rondelle de sûreté 5 mm	00 190 300 06
15	für 50 und 60 Hz:	for 50 and 60 Hz:	pour 50 et 60 Hz:	
	Kondensator 8,2 MF 63 V	Capacitor 8,2 MF 63 V	Condensateur 8,2 MF 63 V	00 113 101 02
16	Anschlagwinkel (Kralle)	Support bracket	Butée d'arrêt	41 031 000 01
17	Anschlagblech (Winkelblech)	Plate	Plaque d'arrêt	41 000 298 01
18	Greiferarmanschlag	Gripper arm rest bracket	Butée de la pince	41 000 054 00
19	6-Kt-Schraube M 4 x 30 DIN 933	Hex-head screw M 4 x 30 mm	Ecrou hexagonal M 4 x 30	00 201 300 01
20	Führungsrolle mit Winkel	Roller and Bracket	Poulie-guide montée	41 000 003 00
	Rolle allein (Kugell.m.Zapfen)	Roller (alone)	Poulie-guide seulement	00 112 200 01
21	Sicherungsscheibe 4 DIN 6799	Retaining ring 4 mm	Rondelle de sûreté 4 mm	00 190 300 05
22	Lagerstück	Fixed shaft	Coussinet	00 120 000 50
23	Bundlager	Sinter bearing	Palier	00 020 200 11
24	Dämpfscheibe PTFE (Teflon)	Washer, Teflon	Rondelle en Teflon	00 240 000 37
25	Nadelbürste	Needle brush	Brosse pour aiguille	00 140 000 11
	Bürstenhalter	Brush bracket	Porte-brosse	41 010 054 02
	Klebeschild f. Plattenteller	Label for turntable	Etiquette pour plateau tourne-disques	00 204 601 41



	Greifarmgruppe	Gripper Arm Group	Groupe de pince serre disque	Bestellnummer Part Number
	Greifarm, kompl. (Pos. 1-8)	Gripper arm, compl. (Pos. 1-8)	Pince serre disque (Pos. 1-8)	41 031 264 00
1	Greifarm (Gußstück)	Gripper arm (die casting only)	Pince serre disque (p. coulée)	41 031 261 00
2	Führungsstück	Record clamp, small	Pièce de guidage, fixe	00 06 000 048
3	Rolle	Roller	Roulette	00 18 000 036
4				
5	Bolzen	Shaft pin	Axe	00 01 030 069
6				
7	Plattenklammer	Record clamp, large	Support de disques (mobil	41 000 043 00
8	Zugfeder	Tension spring	Ressort de traction	00 06 110 068
9				
10	Bügel (Mitnehmer)	Driving bracket	Entraineur	41 000 263 04
11	Greifarmbolzen	Gripper arm shaft	Axe	00 02 040 093
12	Sicherungsblech	Lock plate	Protection	00 19 070 004
16	Hebel	Lever	Levier	41 000 060 09
17	Mikroschalter	Micro switch	Micro contact	00 20 420 028
18	Gewindeplatte	Threaded strap	Couvre joint fileté	41 000 105 01
19	Anschlag	Stop bracket	Pièce de butée	41 010 000 01
20	Steuerscheibe	Holdout cam	Disque de commande	41 000 265 00
21	Zylinderkopf-Schraube M 4x40	Cyl.head screw 4 x 40 mm	Vis 4 x 40 mm	00 20 200 440
22				
23	Zylinderkopf-Schraube M 4x18	Cyl. head screw 4 x 18 mm	Vis 4 x 18 mm	00 20 200 318
24	Kegelrad	Cone wheel	Roue conique	00 11 000 095
25	Mikroschalter	Micro switch	Micro contact	00 20 420 024
26	Umlenkwelle	Stop shaft	Axe de guidage	41 000 271 00
27	Druckfeder	Coil spring	Ressort de pression	00 06 070 017
28	Lagerbock	Support	Support	41 000 052 01
29	Anker	Armature	Armature	00 202 200 00
30	Kern	Core (adjustable stopper)	Noyau	00 11 160 006
31	Bügel	Magnet frame	Culasse d'aimant	00 202 258 02
32	Spule 2108	Coil 2108	Bobine 2108	00 13 110 022
	Zugmagnet, vollst.(Pos.29-32)	Latch solenoid, (Pos.29-32)	Electro-aimant (Pos. 29-32)	00 202 258 00
33	Diode 1 N 4004	Silicone diode 1 N 4004	Diode 1 N 4004	00 04 050 009
34				
35	Steckergehäuse f.Stifte 9-pol.	Receptacle,pin terminals 9 pol.	Boitier cosses male, 9 poles	00 22 030 080
	Stift (einzelner Steckerstift)	Pin terminal (single pin)	Cosses males	00 22 030 074
36	Steckergehäuse f.Hülsen 9-pol.	Receptacle contact term. 9 pol.	Porte prises 9 pol. (Boitier)	00 22 030 081
	Hülse (einzelne Kont.-Buchse)	Contact terminal (single s.)	Cosses femelles	00 22 030 075
37				
38				
39				
40	Umschalter, 2-polig	Toggle switch DPDT	Interrupteur	00 20 420 025
41	Ausschalter, 1-polig	Toggle switch SPST	Interrupteur	00 20 420 001
42	Schild	Label	Etiquette	00 20 650 203
43	Nylonlager Nyliner 1320 71200	Nyliner bearing	Palier Nyliner	00 11 410 002
44	Sicherungsscheibe 10 DIN 6799	Retaining ring 10 mm	Rondelle de sûreté 10 mm	00 19 030 012
45	Bundlager	Sinter bearing	Palier	00 02 020 011
46	Zahnrad	Pinion	Pignon	41 000 063 02
47				
50	Zugfeder	Tension spring	Ressort de traction	00 06 110 036
51	Hebel	Arm	Levier	41 000 143 00
52	Hebel	Arm	Levier	41 000 157 00
53	Welle	Shaft	Axe	00 26 100 013
54	Hebel	Arm	Levier	41 000 156 00
	Hebelgruppe, montiert (Pos. 28, 50 - 54 zusammen)	Shaft, support & lever group (all pos. 28, 50 - 54)	Groupe de levier monté (pos. 28 et 50 - 54)	41 000 155 00
55	Zugfeder	Tension spring	Ressort de traction	00 06 110 034
56	Zughebel, Plattenspieler	Arm, moving turntable chassis	Levier de traction, tourne-dis.	41 000 035 02
57	Lasche	Butt strap	Couvre joint	41 000 078 01
58	Bolzen	Bolt	Boulon	00 02 040 062
59	Schenkelfeder	Torsion spring	Ressort de torsion	00 06 090 024
60	Ausgleichsscheibe	Shim	Rondelle d'épaisseur	00 01 060 031
61	Lagerbolzen	Main shaft	Axe	00 01 030 060
62	Montagewinkel (Plattenführung)	Mounting bracket,record guide	Equerre de guidage	41 200 109 01
63	Führungsstück	Record guide	Pièce de guidage	00 06 000 094



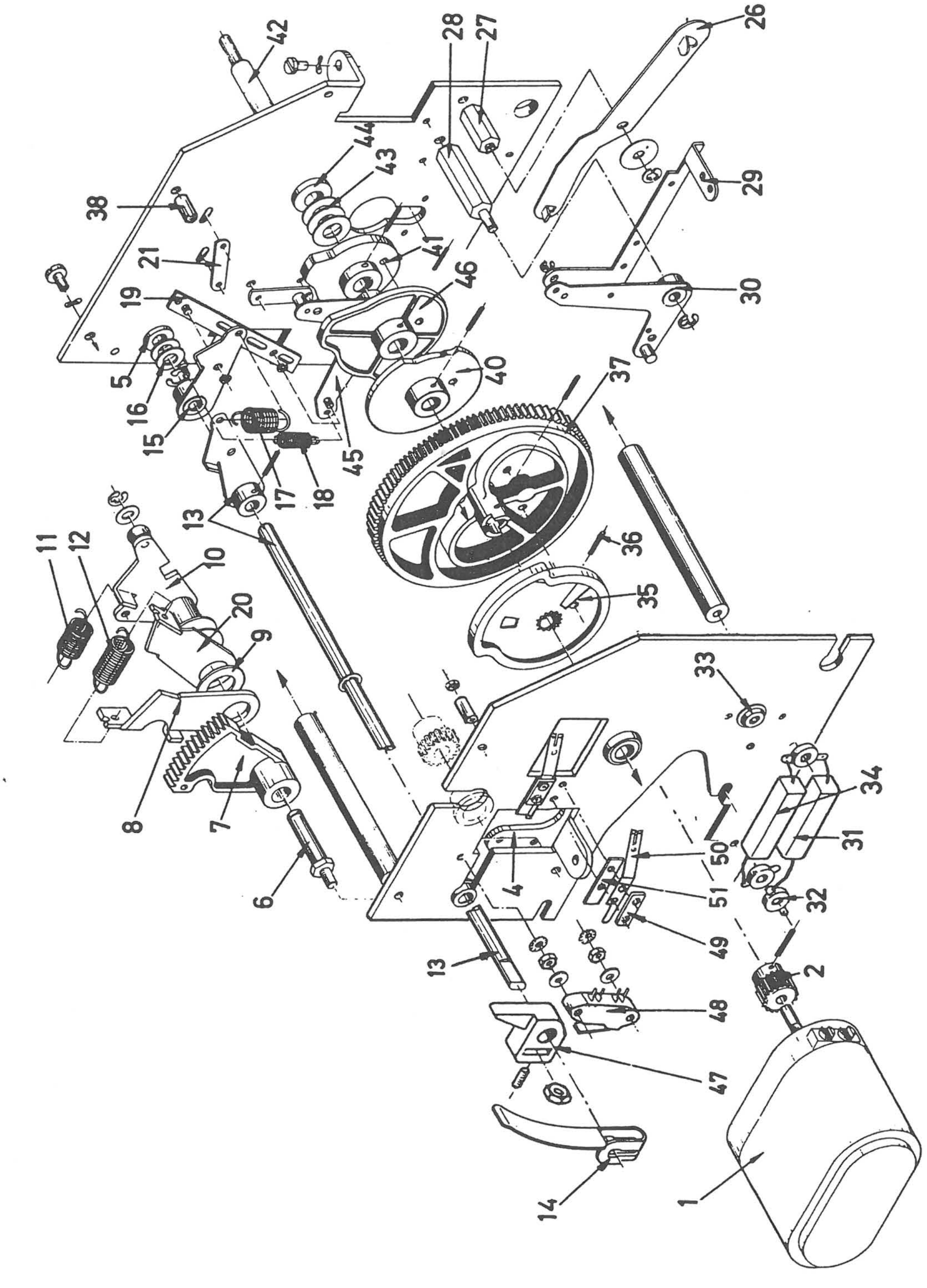


	Getriebegruppe	Gear & Main Cam Group	Groupe d'engrenage	Bestellnummer Part Number
	Getriebe komplett	Gear group, complete	Engrenage, complet	41 200 288 00
1	Motor	Motor	Moteur	oo 13 120 006
	Motor mit Zahnrad	Motor with pinion, complete	Moteur avec pignon, complet	41 000 069 00
2	Zahnrad	Pinion	Pignon	oo 29 080 003
4	Motorträger	Motor support	Support moteur	41 000 069 01
	Distanzbolzen	Distance piece	Entretoise	oo 04 010 009
5	Bundlager	Sinter bearing	Palier	oo 02 020 015
6	Lagerbolzen	Shaft	Boulon de palier	oo 02 040 054
7	Zahnsegment	Toothed segment	Segment denté	41 000 277 01
	Ausgleichsscheibe (n.Bedarf)	Shim washer (as needed)	Rondelle d'épaisseur	oo o1 060 006
8	Kupplungsblech	Actuating arm and hub assy.	Levier de commande	41 000 277 02
9	Ausgleichsscheibe	Shim washer	Rondelle d'épaisseur	oo 01 060 032
10	Halter	Roller arm	Porte bras	41 000 279 00
	Rolle allein	Roller (alone)	Poulie-guide seulement	oo 11 220 001
11	Zugfeder	Tension spring	Ressort de traction	oo 06 110 040
12	Zugfeder	Tension spring	Ressort de traction	oo 06 110 044
13	Greiferwelle mit Hebel	Shaft with arm	Axe avec levier	41 000 141 00
14	Hebel	Lever	Levier	41 000 060 09
15	Hebel	Arm	Levier	41 000 143 00
16	Ausgleichsscheibe (n.Bedarf)	Shim washer (as needed)	Rondelle d'épaisseur	oo 01 060 010
17	Zugfeder	Tension spring	Ressort de traction	oo 06 110 040
18	Zugfeder	Tension spring	Ressort de traction	oo 06 110 009
19	Lasche	Butt strap	Couvre joint	41 000 078 00
20	Kupplungsblech	Actuating arm & hub assy.	Levier de commande	41 000 277 05
21	Gewindelasche	Threaded strap	couvre joint fileté	41 000 105 01
22				
23				
24				
25				
26	Hebel	Arm	Levier	41 000 285 01
27	Bolzen	Distance piece	Entretoise	oo 02 040 080
28	Bolzen	Distance piece	Entretoise	oo 02 040 081
29	Zughebel, Tonarm	Tone arm lever	Levier de traction pick-up	41 000 035 01
30	Hebel	Arm	Levier	41 000 073 00
31	Widerstand 47 Ohm, 9 Watt	Resistor 47 Ohms, 9 Watts	Résistance 47 Ohms, 9 Watts	oo 26 090 001
32	Lötstützpunkt	Isolated solder lug	Contact à soudure isolé	oo 12 200 001
33	Kalottenlager	Sinter bearing	Palier	oo 11 360 001
	Klemmbrille	Bearing fastener	Fixation du palier	oo 11 000 051
34	Widerstand 12 Ohm, 9 Watt	Resistor 12 Ohms, 9 Watts	Résistance 12 Ohms, 9 Watts	oo 26 060 050
35	Steuerkurve Plattenspieler	Cam, turntable	Disque à cames, tourne disqu.	41 200 289 00
36	Spiralstift 4 x 22	Roll pin 4 x 22 mm	Poupille élastique (4 x 22)	oo 21 010 001
37	Antriebszahnrad	Gear wheel	Roue de commande	oo 29 080 017
38	Distanzrohr	Spacer tube	Entretoise	30 000 191 04
39				
40	Steuerkurve, Tonarm-Hub	Came, tone arm lift	Disque à cames, levée de pick-up	oo 22 100 003
41	Kurvenscheibe, Greifarm	Cam, gripper arm	Disque à cames pince serre disque	oo 11 000 053
42	Steuerwelle	Gear shaft	Axe à cames	oo 22 000 029
	Steuerwelle vollst	Gear shaft complete	Axe à cames complet	41 200 284 00
43	Ausgleichsscheibe	Shim washer (as needed)	Rondelle d'epaisseur	oo 01 060 011
44	Bundlager	Sinter bearing	Palier	oo 02 020 016
45	Hebel	Arm	Levier	41 000 064 00
46	Kurvenscheibe Führungskopf	Cam, record centering	Disque à cames, axe de guidage	oo 11 000 052
47	Schaltstück	Actuating lever	Levier de commande	oo 20 000 075
48	Mikroschalter	Micro switch	Micro contact	oo 20 420 067
49	Kontakthalter rot	Insulation sleeve, red	Support de contact	oo 11 330 002
50	Kontaktfeder	Contact blade	Lamelle de contact	o2 05 202 109
51	Isolierplatte	Insulating plate	Plaque isolante	oo 10 101 010
	Kabelbaum für Motor	Wire harness for motor	Câblage pour moteur	41 200 290 00
	Kondensator 47 NF 100 V	Capacitor 47 NF 100 V	Condensateur 47 NF 100 V	oo 11 080 046

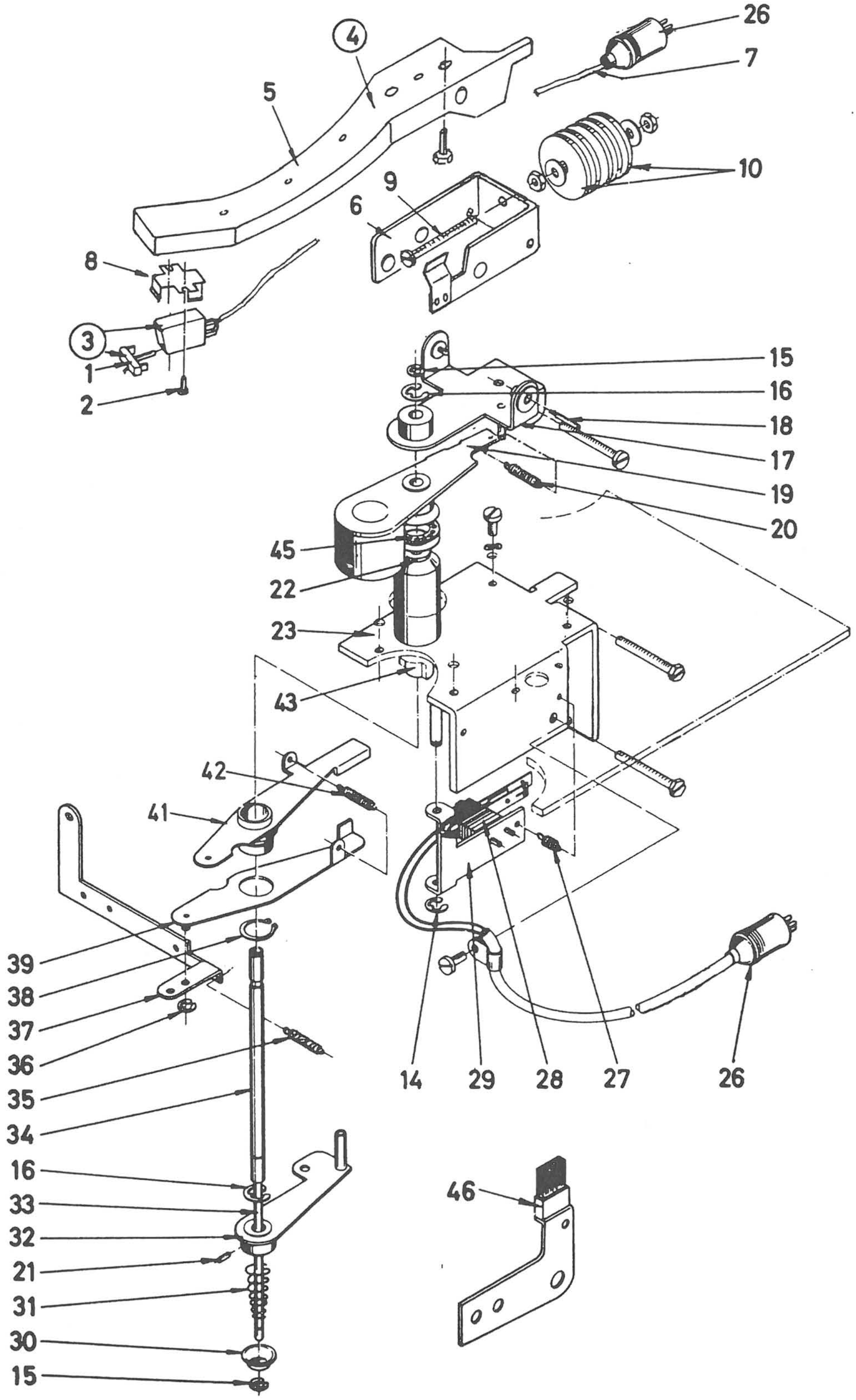
Abweichende Teile bei der Getriebegruppe für die Mechanik 41 220

Alternative parts used with the model 41 220 Changer

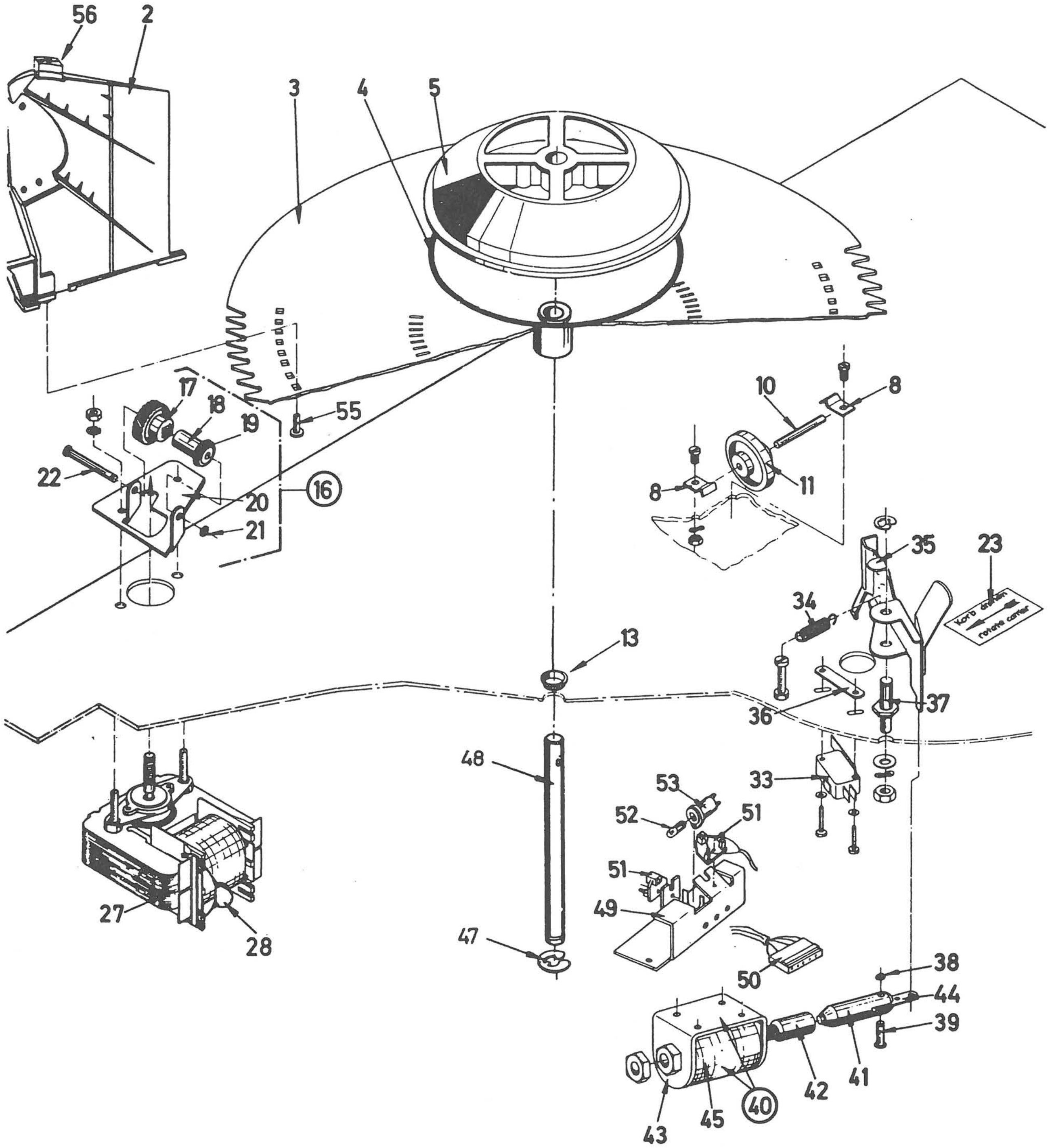
	Getriebe komplett	Gear group, complete	Engrenage, compl.	41 220 288 00
35	Steuerkurve Plattenspieler	Cam, turntable	Disque à cames, tourne disqu.	41 220 289 00
	Isolierscheibe (vor Pos. 35)	Isolating ring (in front of pos. 35)	Rondelle d'isolation	00 240 000 38
42	Steuerwelle vollst.	Gear shaft complete	Axe à cames complet	41 220 284 00
48	Mikroschalter	Micro switch	Micro contact	00 204 200 24



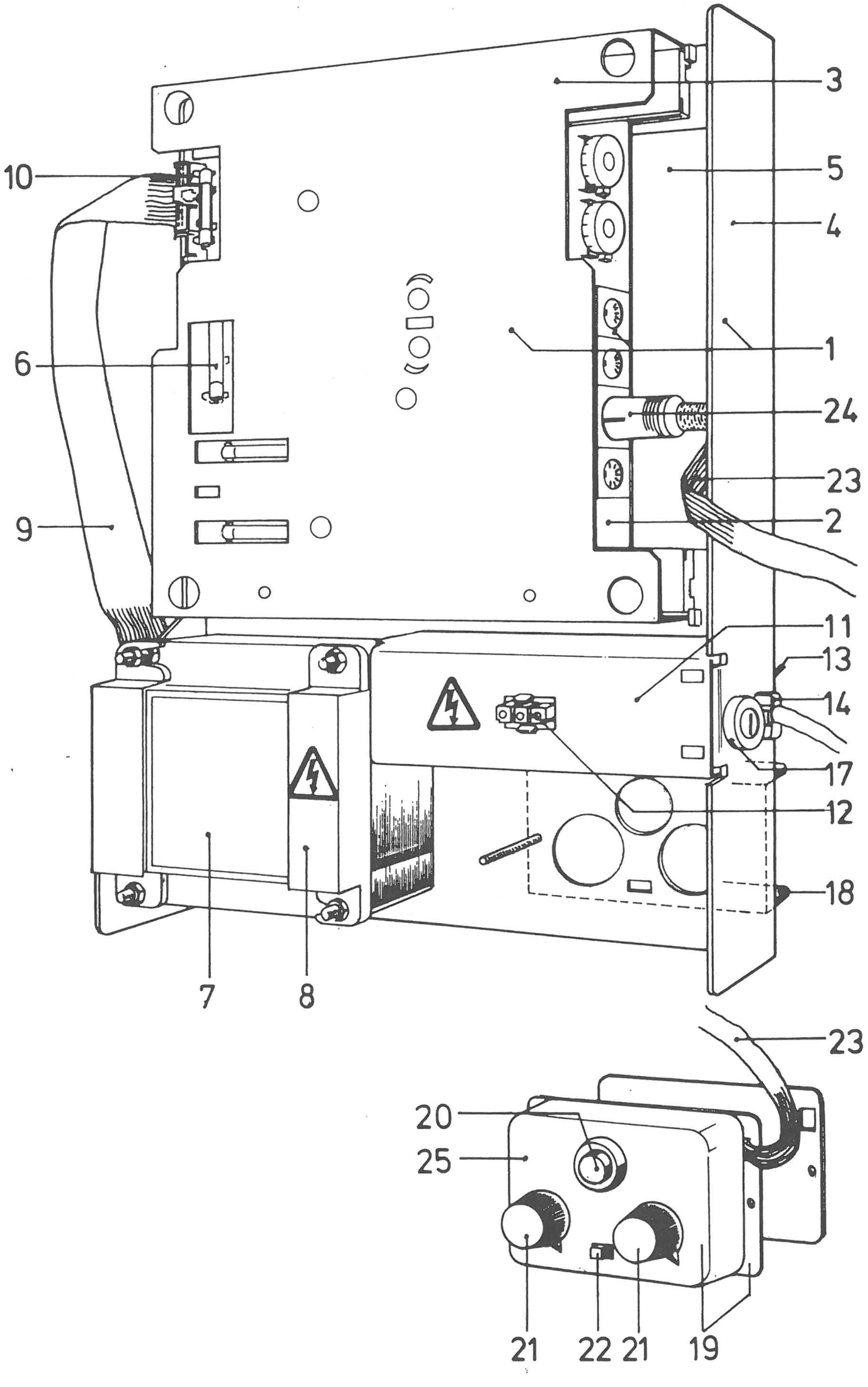
	Tonarm-Gruppe	Tone Arm Group	Groupe de Pick-Up	Bestellnummer Part Number
1	Diamantnadel	Diamond stylus	Diamant aiguille	00 220 700 08
2	Schraube B 2,2 x 4,5	Screw B 2,2 x 4,5	Vis B 2,2 x 4,5	00 200 922 45
3	Tonabnehmersystem	Cartridge	Système stéréo	00 220 700 07
4	Tonarm-Gruppe	Tone arm, complete	Bras de pick-up, complet	41 200 187 00
5	Tonarm	Tone arm	Bras de pick-up	00 230 000 48
6	Haltewinkel	Support bracket	Support	41 200 193 00
7	Tonarmleitung mit Stecker	Tone arm cable with plug	Câble du pick-up avec prise	41 200 192 00
8	Halter für TA-System	Holder for cartridge	Porte Système Stéréo	00 220 700 09
9	Schraube M 4 x 45	Screw M 4 x 45	Vis M 4 x 45	00 202 004 45
10	Gegengewicht (5 Scheiben)	Counter weight (5 discs)	Contre poids (5 pièces)	41 000 087 05
12				
13				
14	Sicherungsscheibe 4 DIN 6799	Retaining ring 4 mm	Rondelle de sûreté 4 mm	00 190 300 05
15	Sicherungsscheibe 2,3 DIN 6799	Retaining ring 2,3 mm	Rondelle de sûreté 2,3 mm	00 190 300 01
16	Sicherungsscheibe 5 DIN 6799	Retaining ring 5 mm	Rondelle de sûreté 5 mm	00 190 300 06
17	Tonarmträger	Tone arm support	Support de pick-up	41 000 090 00
18	Lagerschraube	Support screw	Tourillon	00 203 500 02
19	Justierhebel	Adjusting arm	Levier d'ajustage	41 031 483 00
2o	Zug feder	Tension spring	Ressort de traction	00 061 100 04
21	Gewindestift M 3 x 4 DIN 916	Worm screw (Allen head) 3x4	Cheville filetée M 3 x 4	00 070 100 24
22	Bundlager	Sinter bearing	Douille	00 020 200 14
23	Stützplatte mit Lagerbuchse	Support plate and pivot	Support avec douille	41 000 081 00
26	Stecker (3-polig)	3-pole plug	Prise à 3 pôles	00 220 300 02
27	Zugfeder	Tension spring	Ressort de traction	00 061 100 16
28	Kontaktfedersatz (Mechanik 41 200)	Stacked contact (Changer 41 200)	Jeu de lammelles de contact Model 41 200)	00 101 420 00
	Kontaktfedersatz (Mechanik 41 220)	Stacked contact (Changer 41 220)	Jeu de lammelles de contact (Model 41 220)	00 101 481 00
29	Kontaktwinkel	Contact bracket	Support de jeu de lamelles	41 000 089 01
30	Federteller	Cup-shaped washer	Rondelle en forme cuvette	71 000 109 02
31	Kegelfeder	Cone spring	Ressort conique	00 060 800 01
32	Justierhebel	Arm	Bras d'ajustage	41 000 086 00
33	Welle	Shaft	Axe	0C 261 000 10
34	Drehstab	Tube	Axe de torsion	00 040 000 43
35	Zugfeder	Tension spring	Ressort de traction	00 061 100 09
36	Sicherungsscheibe 3,2 DIN6799	Retaining ring 3,2 mm	Rondelle de sûreté 3,2 mm	00 190 300 02
37	Zughebel	Traction lever	Levier de traction	41 000 035 01
38	Sicherungsring 12x1 DIN 471	Fastener ring 12 mm	Rondelle de sûreté 12 mm	00 190 400 04
39	Mitnehmer	Driving arm	Entraîneur (goupille)	41 000 085 00
40				
41	Mitnehmer	Driving arm	Entraîneur	41 000 084 00
42	Zugfeder	Tension spring	Ressort de traction	00 061 100 20
43	Zylinderlager	Sinter bearing	Palier	00 290 400 11
44				
45	Kunststoff-Kugellager	Ball bearing (plastic)	Palier à billes (plastique)	00 112 200 03
	Ausgleichsscheibe	Shim	Rondelle d'épaisseur	00 010 600 31
	Ausgleichsscheibe	Shim	Rondelle d'épaisseur	00 010 600 33
46	Nadelbürste	Needle brush	Brosse pour aiguille	00 140 000 11
	Bürstenhalter	Brush bracket	Porte-brosse	41 010 054 02



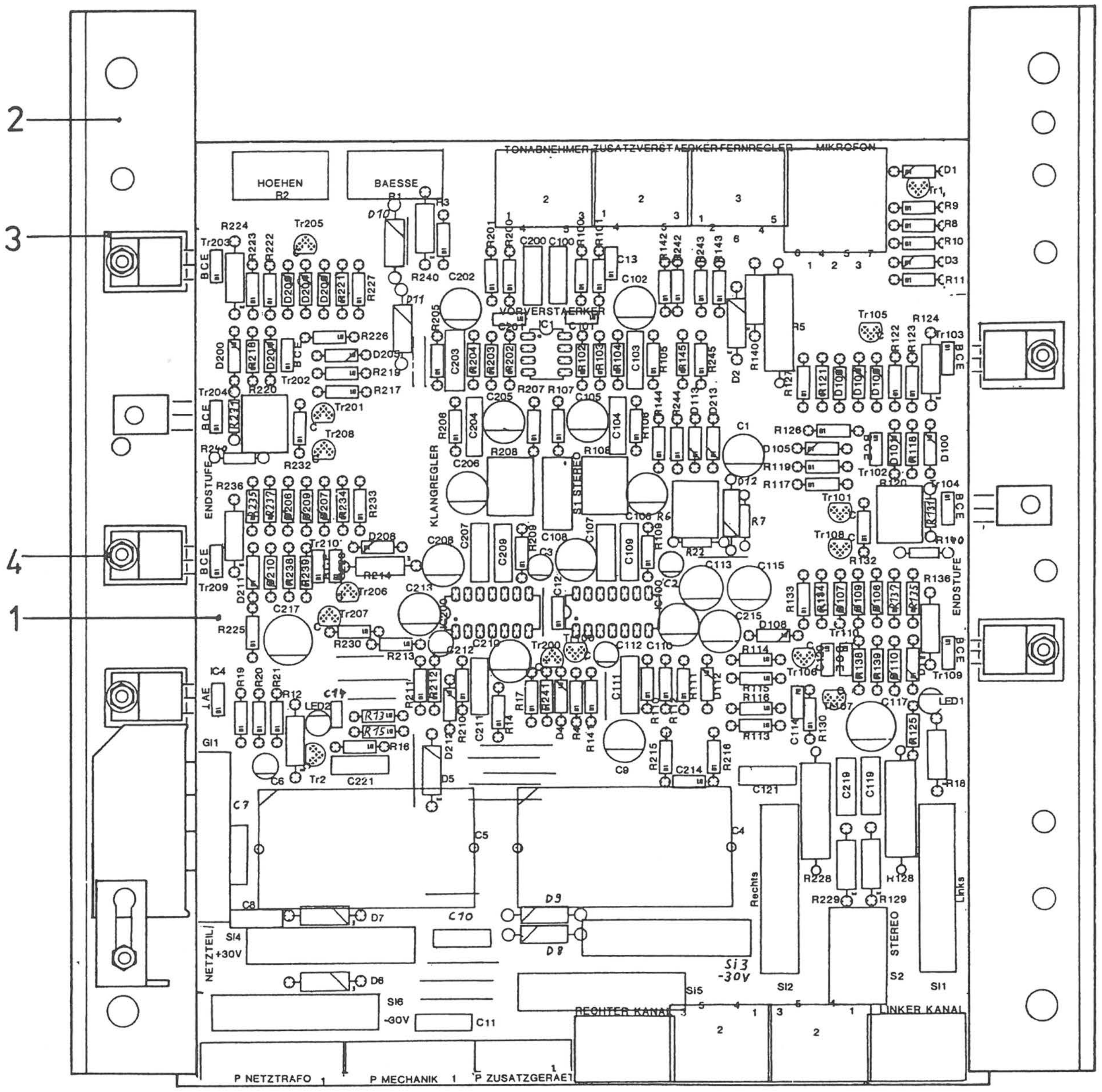
	Plattenkorb	Record Carrier	Magasin	Bestellnummer Part Number
	Plattenkorb kompl. (W 200)	Record carrier compl.(W200)	Magasin compl. (W 200)	41 220 200 00
	Plattenkorb kompl. (W 160)	Record carrier compl.(W160)	Magasin compl. (W 160)	41 052 200 00
2	Plattentrenner (W 200)	Record holder (W200)	Support de disques (W 200)	oo 16 000 040
	Plattentrenner (W 160)	Record holder (W160)	Support de disqu. (160)	oo 16 000 043
3	Korbplatte (W 200)	Record holder plate (W200)	Plateau denté (W 200)	41 200 100 13
	Korbplatte (W 160)	Record holder plate (W160)	Plateau denté (W 160)	41 000 100 03
4	Gummiring	Rubber gasket	Couroie caoutchouc	oo o7 000 036
5	Lagerteller	Record holder casting	Plaque de palier	oo 12 000 057
8	Rollenhalter	Shaft bracket	Support de galet	41 010 000 04
10	Achse	Shaft	Axe	41 010 000 03
11	Laufrolle	Roller	Galet	oo 12 000 048
13	Nylonlager Nyliner 1320 71200	Nyliner bearing	Palier Nyliner	oo 11 410 002
16	Lagerblech, vollst.	Gear, bushing & drive wheel	Support avec roue dentée	42 000 103 00
17	Schneckenrad	Gear wheel	Roue dentée	oo 20 000 036
18	Antriebsstück	Drive roll	Poulie d'entrainement	oo o1 000 098
19	O-Ring 10 x 4	Rubber ring	Courroie caoutchouc	oo 15 010 007
20	Lagerblech	Drive mounting plate	Support, non complet	42 000 103 02
21	Sicherungsscheibe 4 DIN 6799	Retaining ring 4 mm	Rondelle de sûrete 4 mm	oo 19 030 005
22	Lagerbolzen	Shaft	Axe	oo o2 040 094
23	Schild	Label	Etiquette	oo 20 650 204
27	Motor mit fester Schnecke	Motor and worm	Moteur avec vis sans fin	oo 13 120 024
28	VDR-Widerstand	VDR resistor	Résistance (VDR)	oo 26 110 015
33	Mikroschalter	Micro switch	Micro-contact	oo 20 420 024
34	Zugfeder	Tension spring	Ressort de traction	oo o6 110 035
35	Rastklinke (W 200)	Stop pawl arm (W 200)	Bras d'arret (W 200)	41 200 401 04
	Rastklinke (W 160)	Stop pawl arm (W 160)	Bras d'arret (W 160)	42 000 401 04
36	Gewindeplatte	Threaded strap	Plaquette	41 000 105 01
37	Lagerbolzen	Support bolt	Boulon	oo 12 030 010
38	Sicherungsscheibe 3,2 mm	Retaining ring 3,2 mm	Rondelle de sûrete 3,2 mm	oo 19 030 002
39	Bolzen 4 x 15 mm	Pin 4 x 15 mm	Boulon 4 x 15 mm	oo o2 040 036
40	Zugmagnet vollst.	Latch solenoid, compl.	Electro-aimant, compl.	00 202 207 00
41	Anker	Solenoid armature	Armature d'aimant	00 202 177 00
42	Kern (Anschlag)	Core (adjustable stopper)	Noyau d'aimant	oo 11 160 024
43	Bügel	Magnet frame	Culasse d'aimant	00 202 036 00
	Hülse (Rohrniet)	Brass tube	Tube	oo 14 050 038
44	Lasche	Butt strap	Eclisse	71 000 064 02
45	Spule 2176	Coil 2176	Bobine 2176	oo 13 110 028
47	Sicherungsscheibe 10 DIN 6799	Retaining ring 10 mm	Rondelle de sûreté 10 mm	oo 19 030 012
48	Welle	Shaft	Axe	oo 26 100 040
49	Lichtschranke vollst.	Light gate assembly	Barrage optique, compl.	41 220 350 00
50	Kabel mit Stecker	Cable & plug	Cablage avec fiche	41 220 008 00
51	Halter für Fototransistor	Transistor base	Support pour photo transisteur	41 040 351 00
	Foto-Transistor 50 V, 50 mW	Photo transisor 50 V, 50 mW	Photo transisteur 50 V, 50 mW	oo 23 110 048
52	Glühlampe 24 V, 3 W, BA 7	Lamp 24 V, 3 W, BA 7	Lampe 24 V, 3 W, BA 7	oo o7 000 016
53	Sockelfassung	Lamp socket	Soquet de lampe	oo o6 040 018
55	Blechschraube (W 200)	Thread cutting screw (W200)	Vis en tôle (W 200)	oo 20 360 043
	Blechschraube (W 160)	Thread cutting screw (W160)	Vis en tôle (W 160)	oo 20 224 213
56	Schildersatz (nur W 160)	Set of labels (W 160 only)	Jeu d'etiquettes (W 160)	oo 20 650 207
	Zähler kompl. (W 200)	Counter compl. (W 200)	Compteur compl. (W 200)	
	Zähler kompl. (W 160)	Counter compl. (W 160)	Compteur compl. (W 160)	40 064 000 00
	Zähler allein	Counter	Compteur	oo o7 000 010
	Zwischentrafo	L.T. transformer	Transformateur	oo 14 090 064
	Kaltleiter 1,8 Ohm, 60 V	PTC resistor 1,8 Ohm, 60 V	Résistance 1,8 Ohm, 60 V	oo 26 110 014
	Widerstand 120 Ohm, 1 W	Resistor 120 Ohm, 1 W	Résistance 120 Ohm, 1 W	oo 26 030 002
	Drahtwiderstand 220 Ohm, 5 W	Resistor 220 Ohm, 5 W	Résistance 220 Ohm, 5 W	oo 26 060 032
	Diode SI 400 V	Diode SI 400 V	Diode SI 400 V	oo o4 050 009


⑯
Korb drehen
rotate carter

	Verstärker mit Netzteil	Amplifier with Power Transformer	Amplificateur avec transformateur du reseau	Bestellnummer Part Number
1	Verstärker vollst. mit Netzteil	Amplifier compl. with power transformer	Amplificateur compl. avec transformateur du reseau	40 200 000 00
	Verstärker USA vollst. mit Netzteil	Amplifier USA compl. with power transformer	Amplificateur EUA, compl. avec transformateur du reseau	40 201 000 00
2	Gedr. Schaltung vollst. (siehe Fig. 24 f. Einzelheiten)	P.C. board compl. (refer to fig. 24 for details)	Printed circuit compl. (voir fig. 24 pour détails)	40 200 002 00
3	Deckel	Lid	Couvercle	40 200 000 01
4	Verstärkerchassis	Chassis	Chassis	40 200 001 02
5	Isolation	Isolation plate	Plaque isolante	40 200 000 02
6	Schmelzeinsatz 3,15 A Träge	Fuse, 3,15 A Slo Blow	Fusible 3,15 A lent	00 205 101 17
	Schmelzeinsatz T 3,0 A, 125 V (USA)	Fuse T 3,0 A 125 V (USA)	Fusible T 3,0 A 125 V (USA)	00 205 101 20
7	Netztransformator	Power transformaer	Transformateur du reseau	00 140 900 99
8	Abdeckung für Kontakte	Guard cover (plastic cap)	Capuchon plastique	00 010 001 33
9	Kabelbaum Trafo - Verstärker	Cable, power transf. - amplifier	Cable, Transform. - amplificateur	40 200 001 00
10	Federleiste 10 polig	Connector 10 poles	Prise 10 pol.	00 220 302 10
11	U-Blech (Abdeckung)	Guard cover	Couvercle de protection	40 200 001 02
12	Steckergehäuse f. Hülsen, 3 pol.	Receptacle cont. Terminal 3 poles	Porte prises 3 pôles (boitier)	00 220 300 85
	Hülse (einzelne Kontaktbuchse)	Contact erminal (single socket)	Cosses femelles	00 220 300 75
13	Wippschalter	Switch	Interrupteur	00 204 200 99
14	Kabelklemme	Cable clamp	Clamp de câble	00 111 300 15
	Netzleitung mit Stecker	Power cable with plug (Germany)	Câble d'alimentation avec fiche	00 490 000 55
17	Sicherunshalter	Fuse holder	Porte fusible	00 190 500 20
	Kappe (f. Sicherungen 5x20)	Cap (for fuses 5x20 mm)	Capuchon	00 190 500 21
	Kappe (f. Sicherungen USA)	Cap (for fuses USA)	Capuchon (fusible 6x30 mm)	00 190 500 22
	Schmelzeinsatz F 6,3 250 V (USA)	Fuse F 6,3 A, 250 V (USA)	Fusible F 6,3 A 250 V (USA)	00 205 102 01
18	Schutzkasten	Guard cover	Couvercle de protection	40 200 012 00
19	Lautstärkeregler vollst.	Remote volume control, compl.	R egleur à distance, compl.	40 200 005 00
20	Drucktaster	Rk switch (cancel switch)	Bouton de rejet	00 040 000 12
21	Drehknopf	Button	Bouton tournant	00 040 000 48
	Potentiometer 10 kOhm	Potentiometer 10 kOhm	Potentiomètre 10 kOhm	00 160 300 35
22	Schiebeschalter	Sliding switch	Interrupteur glissant	00 204 200 20
23	Kabelbaum	Cable	Câble	40 200 013 00
24	Stecker 6 polig	Prise 6 poles	Fiche 6 pôles	00 220 300 35
25	Bedienungskasten, leer	Casting, bare	Couvercle	40 200 005 02



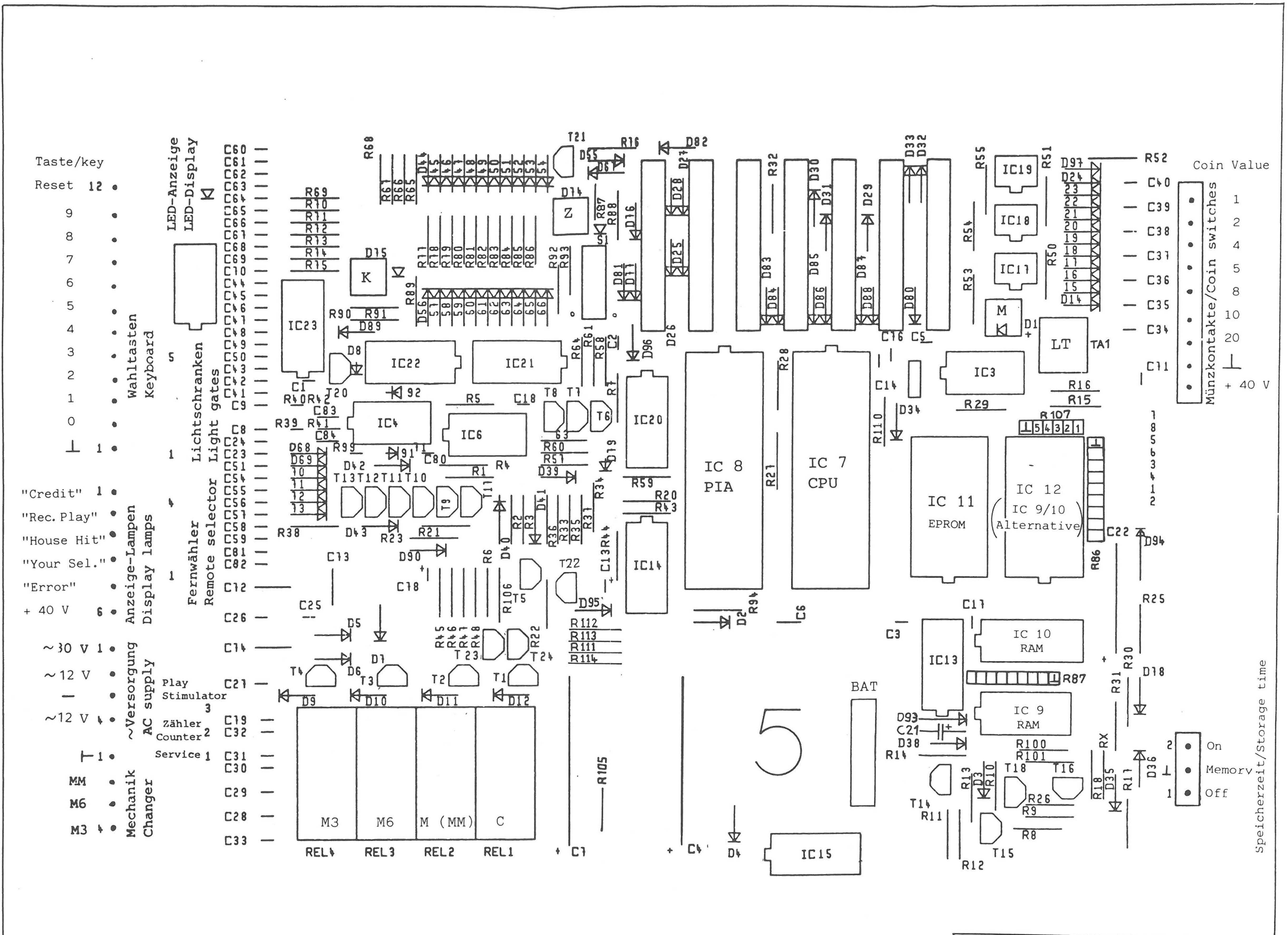
	Verstärker Gedr. Schaltung	Amplifier P. C. Board	Amplificateur Circuit imprimê	Bestellnummer Part Number
	Verstärker, vollst.	Amplifier, vompl.	Amplificateur, compl.	40 200 003 00
1	Gedr. Schaltung, vollst.	P.c. board compl.	Circuit imprimê compl.	40 200 002 00
2	Kühlleiste	Heat sink	Blindage climatique	40 200 004 01
3	Glimmerscheibe	Mica washer	Isolant mica	00 070 000 86
4	Isolierbuchse	Isolating tube	Tube isolante	00 090 000 10
C 1	Elko / Capacitor / Condensateur	100 µF 6V R5 ST	9D12L	00 110 600 85
C 2, 3, 6, 112, 113, 212, 213	Elko / Capacitor / Condensateur	1 µF 40V R2 ST	6D12L	00 110 600 86
C 4, 5	Elko / Capacitor / Condensateur	4700 µF 40V R 50	26D46L	00 110 601 20
C 7, 8	Folienkondensator/Capacitor/Condensateur	220 nF 10% 100V	R10	00 113 100 68
C 9, 110, 220	Elko / Capacitor / Condensateur	10 µF 40V R5 ST	9D12L	00 110 600 87
C 10, 11	Folienkondensator/Capacitor/Condensateur	1 µF 10% 100V	R10	00 113 101 05
C 12, 13	Scheibenkondensator/Capacitor/Condensateur	100 nF 50V R5		00 110 800 56
C 14, 114, 214	Scheibenkondensator/Capacitor/Condensateur	4,7 nF 100V R5		00 110 800 45
C 100, 200	Folienkondensator/Capacitor/Condensateur	470 nF 10% 63V	R10	00 113 101 03
C 101, 201	Scheibenkondensator/Capacitor/Condensateur	27 pF 100V R5		00 110 800 51
C 102, 105, 106, 202, 205, 206	Elko / Capacitor / Condensateur	4,7 µF 40V R2 ST	5D11L	00 110 600 99
C 103, 203	Folienkondensator/Capacitor/Condensateur	4,7 nF 10% 400V	R10	00 113 100 53
C 104, 204	Folienkondensator/Capacitor/Condensateur	1 nF 10% 400V	R10	00 113 100 48
C 107, 207	Folienkondensator/Capacitor/Condensateur	6,8 nF 10% 160V	R10	00 113 100 55
C 108,117,208,218	Elko / Capacitor / Condensateur	47 µF 40V R5 ST	10D12L	00 110 600 83
C 109,121,209,221	Folienkondensator/Capacitor/Condensateur	100 nF 10% 100V	R10	00 113 100 75
C 111, 211	Folienkondensator/Cpacitor/Condensateur	330 nF 10% 63V	R10	00 113 100 78
C 115, 215	Elko / Capacitor / Condensateur	2,2 µF 40V R2 ST	6D12L	00 110 600 98
C 119, 219	Folienkondensator/Capacitor/Condensateur	47 nF 10% 100V	R10	00 113 100 63
C 120, 220	Scheibenkondensator/Capacitor/Condensateur	220 pF 100V R5		00 110 800 49
D 1,3,5,100-103 105-108,110,111, 200-203,205-208, 210,211	Diode Si 100V 150mA	1 N 4446		00 040 500 05
D 2, 6 - 11	Diode Si 400V 1A	1 N 4004		00 040 500 09
D 4, 112, 212	Diode Si Z 5,6V 5% 1,3W	ITT ZPY		00 040 500 22
D 104, 109, 113, 204, 209, 213	Diode Ge 00V 150mA	SIE AA 118		00 040 500 27
Gl 1	Gleichrichter / Rectifier / Redresseur	Si 8250-C5000/3500		00 070 300 22
IC 1	IC-Doppelvorverstärker / IC Double pre-amplifier / IC Pre-amplificateur	LM 387 N		00 090 600 77
IC 4	IC Spannungsregler / IC voltage regulator / IC Regulateur de voltage	1,2/57V 1,5A	LM 317 T	00 090 601 41
IC 100, 200	IC Klangregelverstärker / IC Tone control amplifier	TDA 4290		
LED 1	Leuchtdiode grün / LED green / LED verte	20mA 60mW	CQY 94	00 040 500 30
LED 2	Leuchtdiode rot / LED red / LED rouge	50mA ·100mW	CQY 20-4	00 040 500 18
R 1, 2	Potentiometer / Potentiomètre	10 KOhm LP	0074-300	00 160 301 02
R 3,9,13,17,104, 113,127,133,204, 213,227,233	Widerstand / Resistor / Résistance	4,7 kOhm 5% 1/3W R10	R 25 J	00 261 500 57
R 4, 8, 141, 241	Widerstand / Resistor / Résistance	47 kOhm 5% 1/3W R10	R 25 J	00 261 500 69
R 5	Drahtwiderst. / Wire wound resistor / Résistance	1 kOhm 10% 4W		00 260 700 03
R 6	Trimm-Widerstand / Trimmer pot./ Potentiomètre	1 mOhm LP-S 10 R5/10		00 160 400 43
R 7,16,20,101,103, 109,114,201,203, 209,214	Widerstand / Resistor / Résistance	1 kOhm 5% 1/3W R10	R 25 J	00 261 500 49
R 10,11,116,131, 216,231	Widerstand / Resistor / Résistance	2,7 kOhm 5% 1/3W R10	R 25 J	00 261 500 54
R 12	Widerstand / Resistor / Résistance	4,7 kOhm 10% 1/2W R15	R 50 J	00 260 400 17
R 14	Widerstand / Resistor / Résistance	100 kOhm 5% 1/3W R10	R 25 J	00 261 500 73
R 15, 119, 219	Widerstand / Resistor / Résistance	10 kOhm 5% 1/3W R10	R 25 J	00 261 500 61
R 18	Widerstand / Resistor / Résistance	3,9 kOhm 10% 1/2W R15	R 50 J	00 260 400 16
R 19,110,126,132 210,226,232	Widerstand / Resistor / Résistance	220 Ohm 5% 1/3W R10	R 25 J	00 261 500 41
R 21	Widerstand / Resistor / Résistance	1,5 kOhm 5% 1/3W R10	R 25 J	00 261 500 51
R 100, 200	Widerstand / Resistor / Résistance	56 kOhm 5% 1/3W R10	R 25 J	00 261 500 70
R 102, 202	Widerstand / Resistor / Résistance	150 kOhm 5% 1/3W R10	R 25 J	00 261 500 75
R 105, 205	Widerstand / Resistor / Résistance	560 kOhm 5% 1/3W R10	R 25 J	00 261 500 82
R 106, 206	Widerstand / Resistor / Résistance	82 kOhm 5% 1/3W R10	R 25 J	00 261 500 72
R 107, 207	Widerstand / Resistor / Résistance	1,8 kOhm 5% 1/3W R10	R 25 J	00 261 500 52
R 108,120,208,220	Trimm-Widerstand / Trimmer pot./ Potentiomètre	10 kOhm LP-S 10 R5/10		00 160 400 33
R 111, 211	Widerstand / Resistor / Résistance	10 Ohm 5% 1/3W R10	R 25 J	00 261 500 25
R 112, 212	Widerstand / Resistor / Résistance	8,2 Ohm 5% 1/3W R10	R 25 J	00 261 500 24
R 115, 215	Widerstand / Resistor / Résistance	15 kOhm 5% 1/3W R10	R 25 J	00 261 500 63
R 117, 123, 135, 217, 223, 235	Widerstand / Resistor / Résistance	330 Ohm 5% 1/3W R10	R 25 J	00 261 500 43
R 118, 218	Widerstand / Resistor / Résistance	47 Ohm 5% 1/3W R10	R 25 J	00 261 500 33
R 121, 130, 134, 221, 230, 234	Widerstand / Resistor / Résistance	100 Ohm 5% 1/3W R10	R 25 J	00 261 500 37
R 122,137,222,237	Widerstand / Resistor / Résistance	390 Ohm 5% 1/3W R10	R 25 J	00 261 500 44
R 124,136,224,236	Drahtwiderst. / Wire wound resistor / Résistance	0,47 Ohm 10% 4W R15	292-1	00 260 600 78
R 125, 225	Widerstand / Resistor / Résistance	6,8 kOhm 5% 1/3W R10	R 25 J	00 261 500 59
R 128, 228	Drahtwiderst. / Wire wound resistor / Résistance	0,10 Ohm 10% 4W	206-8	00 260 600 79
R 129, 229	Widerstand / Resistor / Résistance	10 Ohm 5% 1/3W R10	R 25 J	00 260 300 27
R 138, 238	Widerstand / Resistor / Résistance	1,2 kOhm 5% 1/3W R10	R 25 J	00 261 500 50
R 140, 240	Widerstand / Resistor / Résistance	2,2 kOhm 5% 1/3W R10	R 25 J	00 260 400 10
R 142, 242	Widerstand / Resistor / Résistance	180 Ohm 5% 1/3W R10	R 25 J	00 261 500 40
R 143, 243	Widerstand / Resistor / Résistance	18 kOhm 5% 1/3W R10	R 25 J	00 261 500 64
R 144, 244	Widerstand / Resistor / Résistance	560 Ohm 5% 1/3W R10	R 25 J	00 261 500 46
R 145, 245	Widerstand / Resistor / Résistance	2,2 kOhm 5% 1/3W R10	R 25 J	00 261 500 53


2
3
4
1
HOEHEN R2
BAESSE R1
TONABNEHMER
ZUSATZVERSTAERKER
FERNREGLER
MIKROFON
VORVERSTAERKER
KLANGREGLER
S1 STEREO
ENDSTUFE
ENDSTUFE
NETZTEIL
+30V
-30V
Si3 -30V
Rechts
Links
STEREO
S2
SI1
SI2
SI4
SI5
SI6
C4
C5
C7
C8
C9
C10
C11
D6
D7
D8
D9
GI1
IC4
LED1
LED2
Tr1
Tr2
Tr101
Tr102
Tr103
Tr104
Tr105
Tr106
Tr107
Tr108
Tr109
Tr110
Tr200
Tr201
Tr202
Tr203
Tr204
Tr205
Tr206
Tr207
Tr208
Tr209
Tr210
RECHTER KANAL
LINKER KANAL
P NETZTRAFO
P MECHANIK
P ZUSATZGERAET

S 1	Schiebeschalter / Sliding switch / Interrupteur glissant 2 U LP 30V 1A	BS 20 A 1	00 204 200 97
S 2	Schiebeschalter / Sliding switch / Interrupteur glissant 2 U LP 5A	254 DB 35 C1	00 204 200 98
Si 1 - 6	Schmelzeinsatz 3,15A Träge / Fuse 3,15 Slow Blow / Fusible 3,15A lent		00 205 101 17
Tr 1, 100, 105, 200, 205	Transistor Si-n 50V 0,8A 0,6W	BC 337-25	00 231 100 57
Tr 2, 101, 106, 108, 201, 206, 207, 208	Transistor Si-p 50V 0,8A 0,6W	BC 327-25	00 231 100 53
Tr 102, 202	Transistor Si-p 80V 1,5A 10W KOM	BD 140	00 231 100 47
Tr 103, 203	Transistor Si-p 100V 8A 80W DARL	BDX53CKOMP	00 231 100 66
Tr 104, 204	Transistor Si-n 60V 1,5A 10W	BD 137-10	00 231 100 56
Tr 109, 209	Transistor Si-p 100V 8A 80W DARL	BDX54CKOMP	00 231 100 67
Tr 110, 210	Transistor Si-n 80V 1,5A 10W KOM	BD 139	00 231 100 46
	IC-Sockel / IC socket / IC soquet	DIL 14	00 060 400 48
	Sicherungshalter / Fuse holder / Porte fusible		00 190 500 23
	Stiftleiste / Receptacle / Porte prises 10 pol.		00 220 301 36
	Stiftleiste / Receptacle / Porte prises 9 pol.		00 220 301 56
	Stiftleiste / Receptacle / Porte prises 6 pol.		00 220 301 40
	Steckdose / Socket /Soquet 7 pol.		00 220 800 18
	Steckdose / Socket /Soquet 6 pol.		00 220 800 12
	Steckdose / Socket /Soquet 5 pol.		00 220 800 11
	Steckdose / Socket /Soquet 2 pol.		00 220 800 17

Liste der elektronischen Bauteile - List of electronic parts

Pos.-Nr.	Benennung / Denomination	Bestelldaten / Producers Code	Art.-Nr. Part No.
D 1, 74, 75	Leuchtdiode / LED 50 mA rot	Valvo C Q Y 24	00 04 050 018
D 2	Diode Si Z 5 V 6 1,3 W		00 04 050 022
D 3, 8 - 12, 14 - 24, 24 - 36, 38 - 73, 78, 79, 89 - 94	Diode Si 100 V 150 mA	ITT 1 N 4446/Siemens BAY 61	00 04 050 005
D 4 - 7	Diode Si 400 V 1 A	ITT 1 N 4004	00 04 050 009
D 25 - 33, 76, 77, 80 - 88	Diode Ge	AA 118	00 04 050 027
D 95	Diode Si Z 5 V 1 400 mA	ITT Z P D	00 04.050 023
C 1 - 3, 5, 17, 80	Kondensator 47 nF 32 V R 5		00 11 080 046
C 4	Elko 2200 µF 25 V R 45		00 11 060 090 (115)
C 7	Elko 220 µF 63 V R 35		00 11 060 021
C 8, 9, 23, 24, 27, 30, 31, 34 - 51, 54 - 59, 60 - 70	Kondensator 4,7 nF 100 V R 5		00 11 080 045
C 21	Elko 2,2 µF 16 V Tantal		00 11 060 163
C 22	Elko 220 µF 16 V R 22		00 11 060 039
C 25, 28, 29, 32, 33, 71	Kondensator 4,7 nF 400 V Keramik		
C 72 - 74	Kondensator 1 µF 100 V		
IC 3	IC 4-Nand-Gatter	Texas SN 7400 N	00 09 060 080
IC 4	IC Schwellwertschalter/Smith trigger	Motorola MC 14 093	00 09 060 095
IC 6	IC 4-Nand-Gatter	Motorola MC 14 011 P	00 09 060 071
IC 7	IC MPU Mikropr. Zentraleinheit	Motorola MC 6802 P	00 09 060 079
IC 8	IC PIA Mikropr. Ein- u. Ausgabeeinheit	Motorola MC 6821	00 09 060 064
IC 9 + 10	IC RAM Arbeitsspeicher	Intersil IM 6561	00 09 060 066
alternativ			
IC 12	IC RAM Arbeitsspeicher	Toshiba 5516 A PL 149	00 09 060 149
IC 11	IC ROM Programmspeicher MBox 2.5		40 30 400 200
IC 13	IC Dezimal-Decoder	Texas SN 7442 N	00 09 060 067
IC 14	IC 6-D-Flipflop	Motorola MC 14 174 B	00 09 060 070
IC 15	IC Spannungsregler/Voltage regulator 5 V	Motorola MC 7805 P	00 09 060 076
IC 17 - 19	IC Optokoppler	Motorola 4 N 28	00 09 060 062
IC 20	IC Dezimal-Dekoder	Texas SN 7445 N	00 09 060 073
IC 21 + 22	IC 8-Kanal-Multiplexer	Motorola MC 14 512 CP	00 09 060 072
IC 23	IC 7-Segment -Dekoder	Texas SN 7447 N	00 09 060 074
Q	Quarz HC 18 K, 4 MHz		00 17 010 001
R 1, 4, 23, 29, 41, 42, 53 - 55, 65 - 75,87,98	Widerstand/Resistor 4,7 KOhm 1/5 W 5% R 10		00 26 150 057
R 2, 3, 20, 76 - 86 88, 89, 100, 101	Widerstand/Resistor 22 KOhm 1/5 W 5% R 10		00 26 150 065
R 5, 7, 15, 17, 18, 21 44 - 48	Widerstand/Resistor 1 KOhm 1/5 W 5% R 10		00 26 150 049
R 6, 57, 60, 63	Widerstand/Resistor 150 Ohm		00 26 150 039
R 8, 30, 58, 61, 64, 99	Widerstand/Resistor 220 Ohm 1/5 W 5% R 10		00 26 150 041
R 9, 10, 11, 13, 14, 16 22, 26, 43, 90, 92	Widerstand/Resistor 10 KOhm 1/5 W 5% R 10		00 26 060 066
R 12, 19	Widerstand/Resistor 47 KOhm 1/5 W 5% R 10		00 26 150 069
R 27, 28, 32, 94, 97	Widerstand/Resistor 3,3 KOhm 1/5 W 5% R 10		00 26 150 055
R 31	Widerstand/Resistor 2,7 KOhm 1/5 W 5% R 10		00 26 150 054
R 33 - 37	Widerstand/Resistor 470 Ohm 1/5 W 5% R 10		00 26 150 045
R 38	Widerstand/Resistor 8,2 Ohm 1/5 W 5% R 10		
R 39, 40	Widerstand/Resistor 22 KOhm 1/5 W 5% R 10		00 26 150 065
R 49	Widerstand/Resistor 1,5 KOhm 1/2 W 5% R 15		00 26 040 006
R 50 - 52	Widerstand/Resistor 1,5 KOhm 1/5 W 5% R 10		00 26 150 051
R 56, 59, 62	Widerstand/Resistor 4,7 Ohm 1/5 W 5% R 10		00 26 150 021
R 91, 93	Widerstand/Resistor 560 Ohm 1/5 W 5% R 10		00 26 150 046
R 107	5-fach Widerstand/5-fold resistor 100 KOhm 1/8 W		00 26 130 573
R 108, 109	8-fach Widerstand/8-fold resistor 100 KOhm 1/8 W		00 26 130 873
Rel 1 - 4	Relais 12 V 1 A	Haller H 546 300 Ohm	00 18 010 043
BAT 1	Lithiumzelle	CR 2430	00 02 080 006
S 1	Schiebeschalter/Slide switch 1 U	Knitter MFP 221 N	00 20 460 030
S 2	Tastschalter/Push button	Schöller 4120	00 20 420 077
T 1 - 4, 17	Transistor Si npn	Siemens BC 338-40	00 23 110 055
T 5, 15, 16, 20, 21	Transistor Si npn	Siemens BC 238 B	00 23 110 051
T 6 - 8, 22	Transistor Si pnp	Siemens BC 327-25	00 23 110 053
T 9 - 13	Transistor Si npn	Siemens BC 337-25	00 23 110 056
T 14, 18	Transistor Si pnp	Siemens BC 308 B	00 23 110 054
	Kaltleiter/PTC-resistor 1,8 Ohm 66 V		00 26 110 014


Taste/key
Reset 12
9
8
7
6
5
4
3
2
1
0
1
Wahltasten
Keyboard
"Credit" 1
"Rec. Play"
"House Hit"
"Your Sel."
"Error"
+ 40 V 6
Anzeige-Lampen
Display lamps
~30 V 1
~12 V
~12 V 4
~Versorgung
AC supply
1
MM
M6
M3 4
Mechanik
Changer
LED-Anzeige
LED-Display
Lichtschranken
Light gates
Fernwähler
Remote selector
Play Stimulator 3
Zähler Counter 2
Service 1
C60
C61
C62
C63
C64
C65
C66
C67
C68
C69
C70
C44
C45
C46
C47
C48
C49
C50
C43
C42
C41
C9
C8
C24
C23
C51
C54
C55
C56
C57
C58
C59
C81
C82
C12
C26
C14
C27
C19
C32
C31
C30
C29
C28
C33
IC23
IC22
IC21
IC4
IC6
IC20
IC14
IC 8
PIA
IC 7
CPU
IC 11
EPROM
IC 12
IC 9/10
Alternative
IC19
IC18
IC17
IC3
IC13
IC 10
RAM
IC 9
RAM
IC15
K
Z
M
LT
TA1
BAT
5
M3
M6
M (MM)
C
REL4
REL3
REL2
REL1
C1
C4
D4
R105
Coin Value
1
2
4
5
8
10
20
+ 40 V
Münzkontakte/Coin switches
R52
C40
C39
C38
C37
C36
C35
C34
C11
R107
C22
D94
R86
R25
R30
R31
D18
RX
On
Memory
Off
Speicherzeit/Storage time
T21
R16
D92
T15
T16
T18
R12
R11
T14
R14
D93
C21
D38
R100
R101
R26
R9
R8

Deutsche Wurlitzer GmbH
4971 Hüllhorst/Westf.

Änderungen vorbehalten

Wurlitzer PHONOGRAPH
SCC 403 12/313
Bestückungsplan · Parts Layout
40 304 000 00 B1 — MBOX 2.5
40 306 000 00 B1 — MBOX 2.6

a) Ausbau einer oberen Leuchtstofflampe:
Removing the top fluorescent lamps:

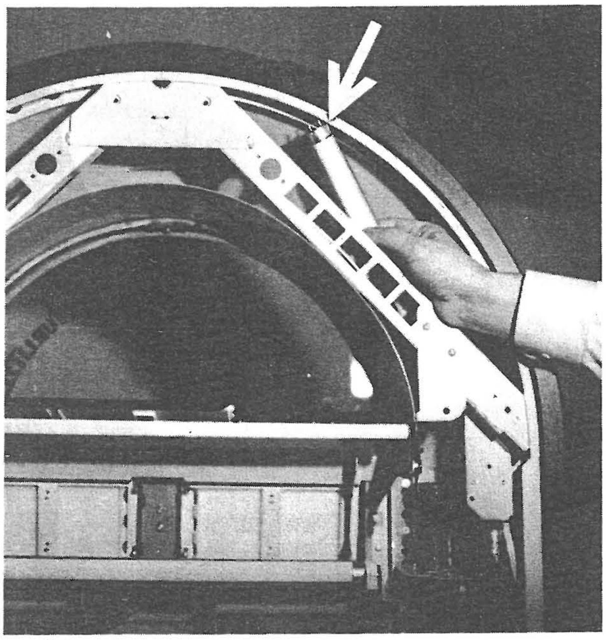


Abb 1

1. Netzstecker ziehen;
2. Die gelbe Blende von der Röhre abdrücken, sie ist aufgeklipst.
3. Lampe drehen und in Richtung Frontscheibe aus den Fassungen drücken.
4. Lampe in die mit Pfeil gezeigte Position des Rundrahmens halten - probieren, wo die günstigste Stelle ist - und langsam drehend herausziehen.

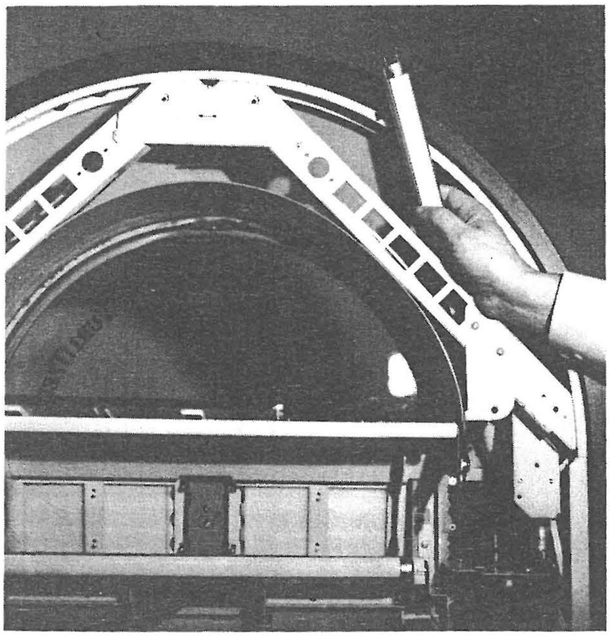


Abb 2

1. Disconnect main plug!
2. Remove the yellow snap diffuser from fluorescent lamp.
3. Turn lamp tube and take out in direction to front glass.
4. Position end of lamp tube as shown and take out in this direction.

b) Ausbau einer unteren, senkrechten Leuchtstofflampe:
Removal of a left, vertical and right fluorescent lamp:

Netzstecker ziehen! Programmhalter komplett herausnehmen.
Pull off main plug! Remove program holder.

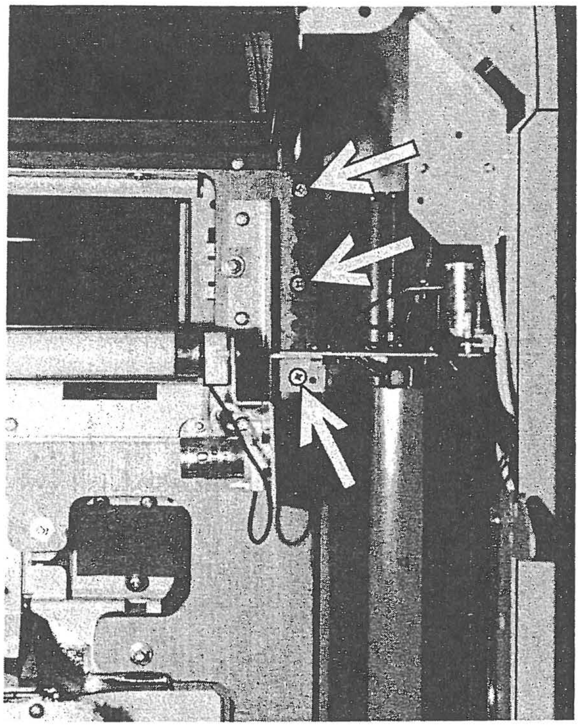


Abb 3

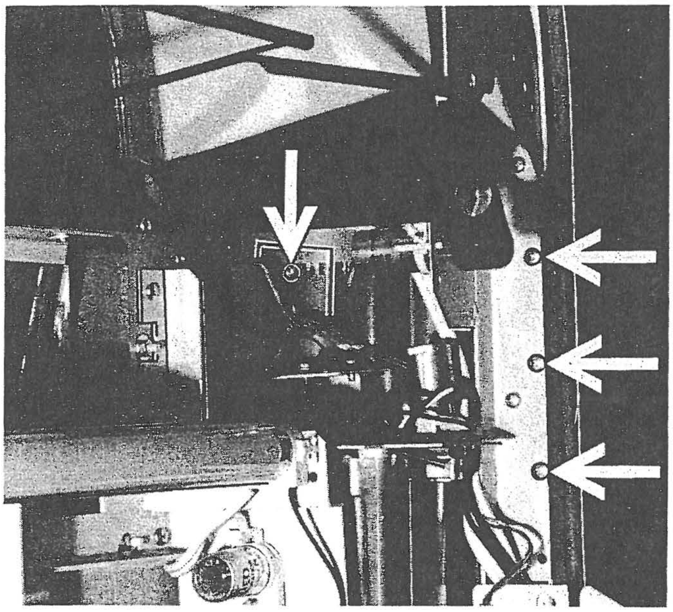


Abb 4

Auf der betreffenden Automatenseite die drei verchromten Zierteile zwischen den Farbscheiben zu entfernen. Dazu die oben gezeigten sieben Stück Spax-Schrauben herausdrehen.

Remove the 3 side-trims by unscrewing 7 wooden screws with Philips head (fig. 3+4).

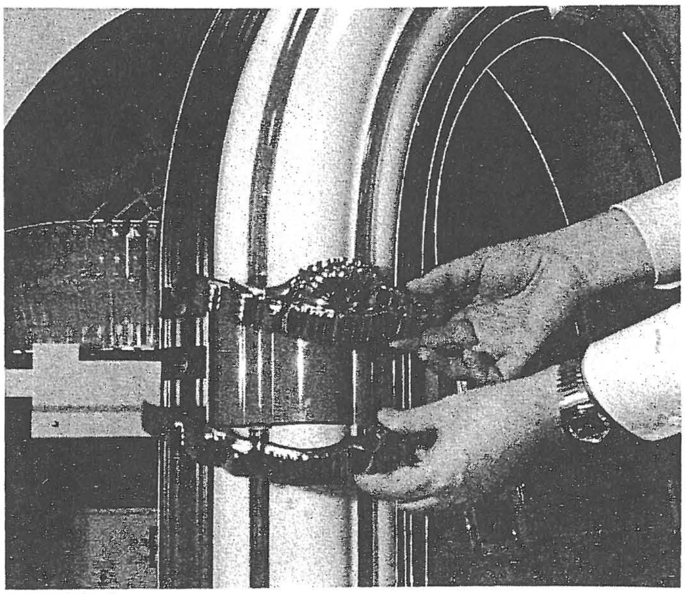


Abb 5

Zierstücke abnehmen.
Remove side-trims.

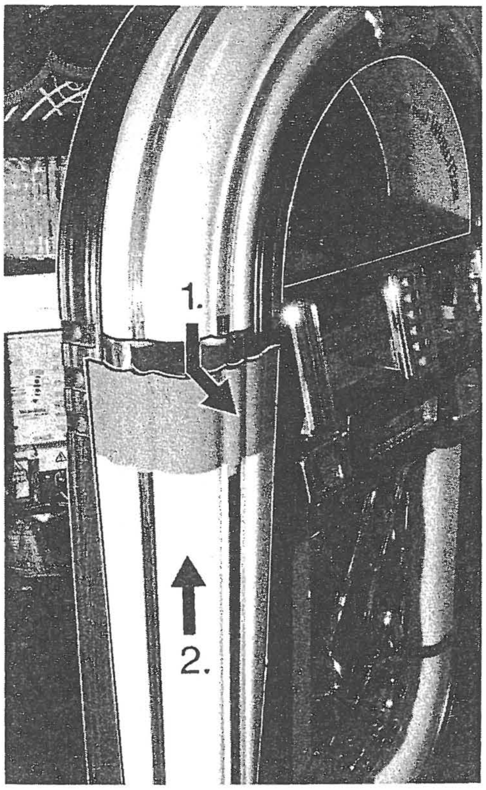


Abb 6

1. Farbblende vorziehen.
2. Farbblende nach oben herausziehen.

1. Pull forward plastic trim.
2. Remove the top plastic trim

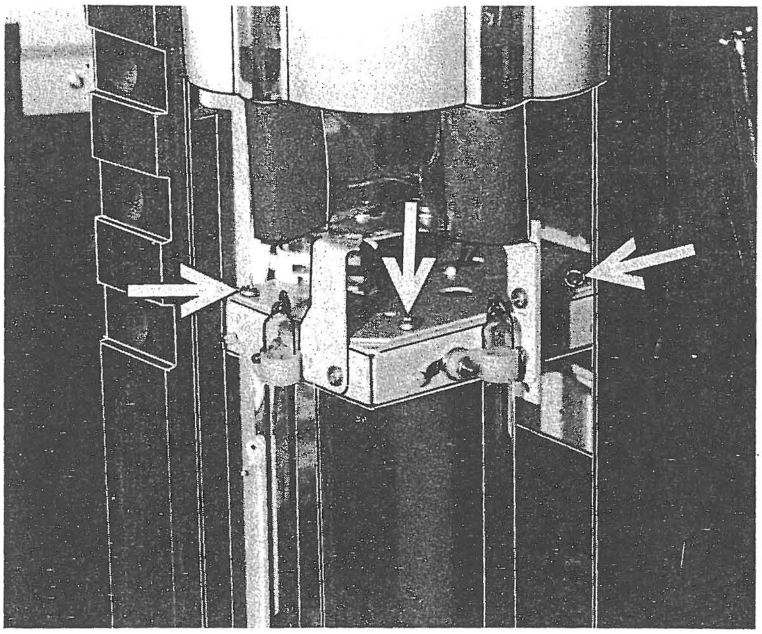


Abb 7

3 Stck. Schrauben der Führungsplatte des Farbzylinders für die Leuchtstofflampe entfernen.

Loosen 3 Philips head screws at the top of the support bracket for coloured, rotating tubes.

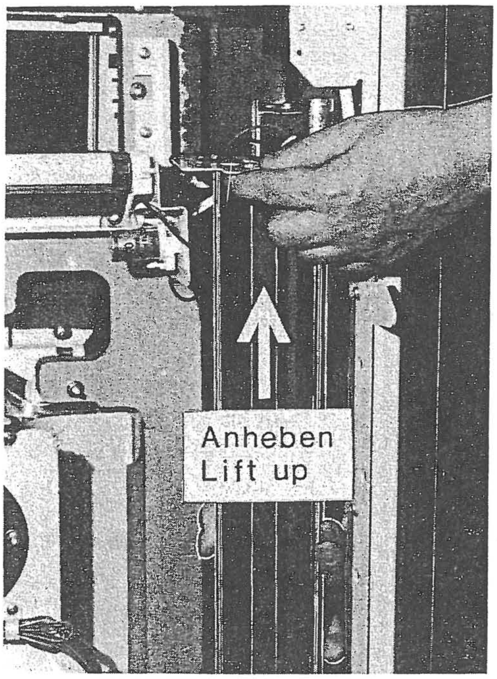


Abb 8

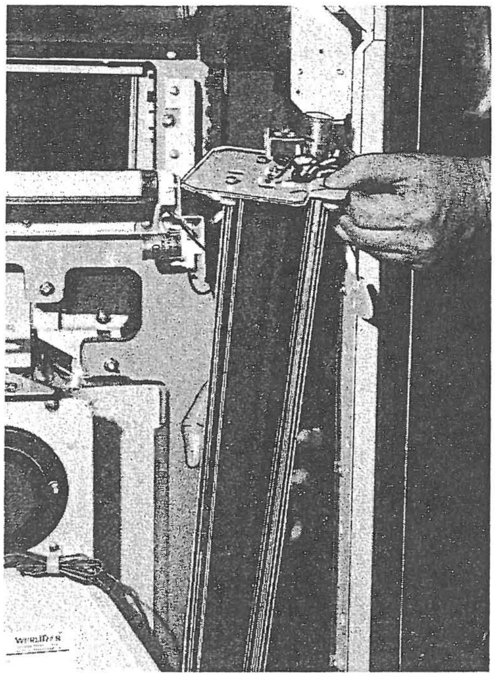


Abb 9

Leuchtstofflampen-Einheit etwas anheben - vorziehen - und aus der unteren Führung herausheben.

Lift up rotating tube unit - move to the front and lift off from the bottom spindle.

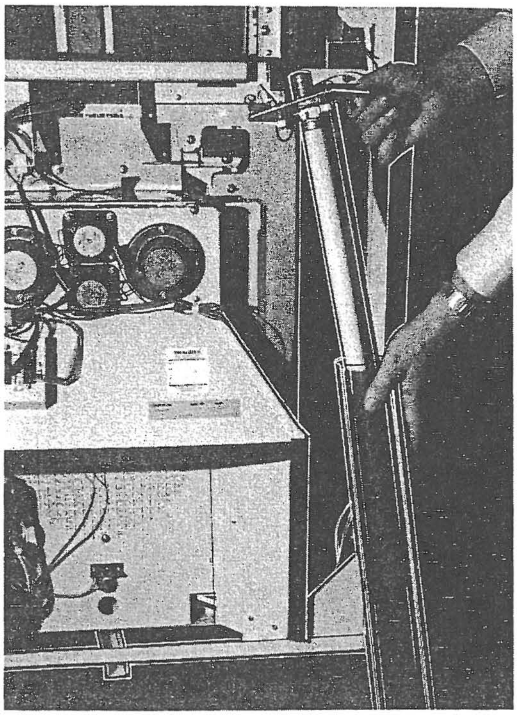


Abb 10

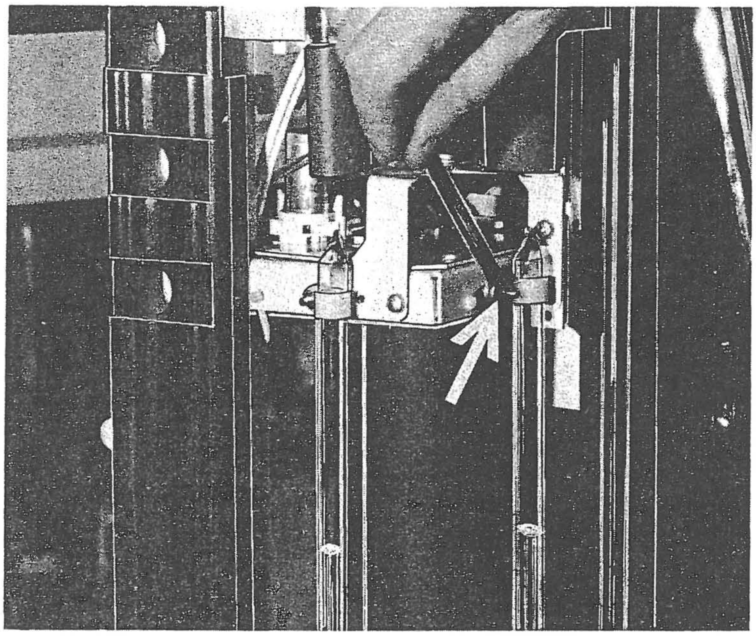
Farbigen Zylinder nach unten abziehen.

Remove coloured rotating tube downwards.

Ausbau der "Bubble Tubes"
Changing of bubble tubes

c) Ausbau einer unteren, senkrechten" Bubble Tube":
Removal of the side mounted Bubble Tube:

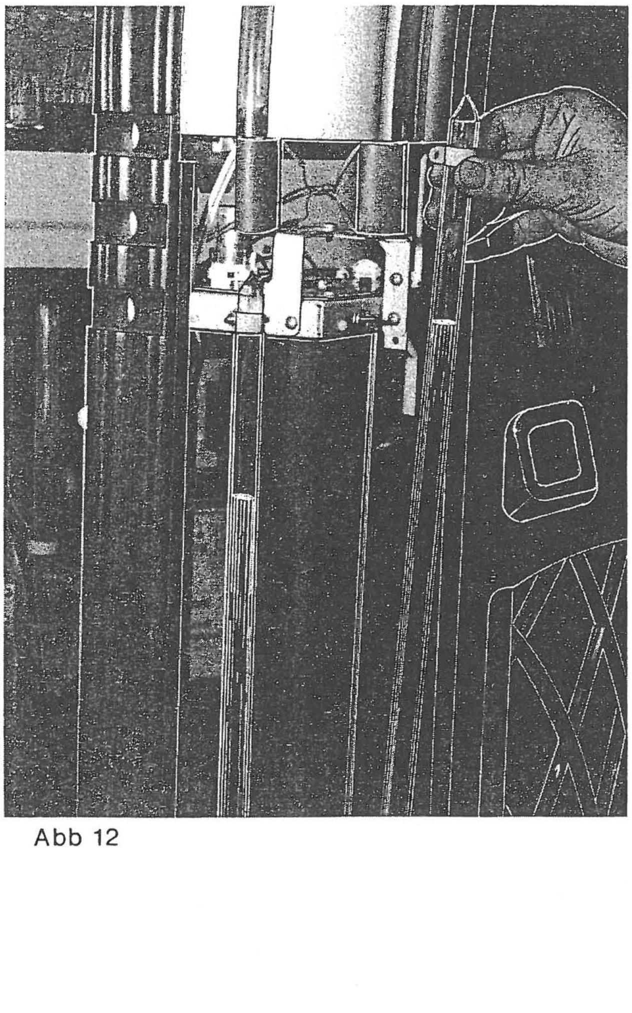
Zunächst die in Abb. 3 bis 6 gezeigten Vorarbeiten durchführen.
Proceed as described in fig. 3 to 6.



Obere Klemmschelle der "Bubble Tube" lösen. Schlüsselweite 7 mm.

Loosen the tube clip nut with an open-ended spanner 7 mm.

Abb 11



"Bubble Tube" vorsichtig nach oben aus der Klemmfassung senkrecht herausziehen.

Removing bubble tube by carefully lifting up out of the buttom heater clip.

Abb 12

d) Ausbau einer gekrümmten "Bubble Tube":
Changing the curved bubble tube:

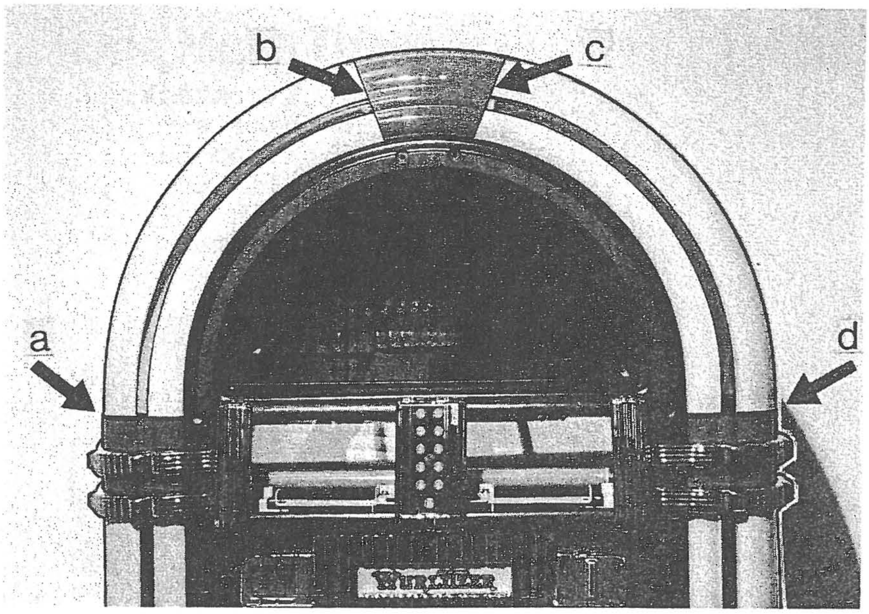


Abb 13

Die vier mit a - d bezeichneten Zierstücke entfernen.

First the four top trims a - d have to be removed How to proceed:

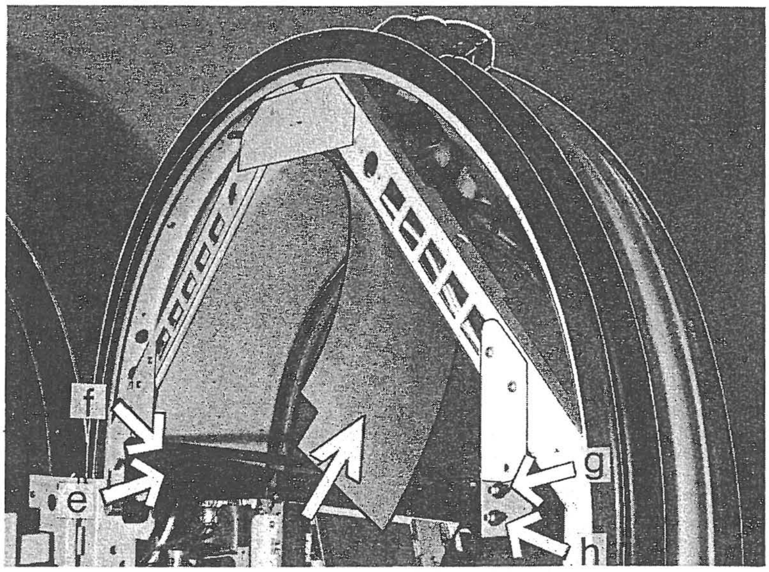


Abb 14

Dazu vorher die gelbe Kunststoffblende (Pfeil) nach Lösen der Muttern e - h herausnehmen.

Loosen the nuts e to h inside and take out the yellow diffuser.

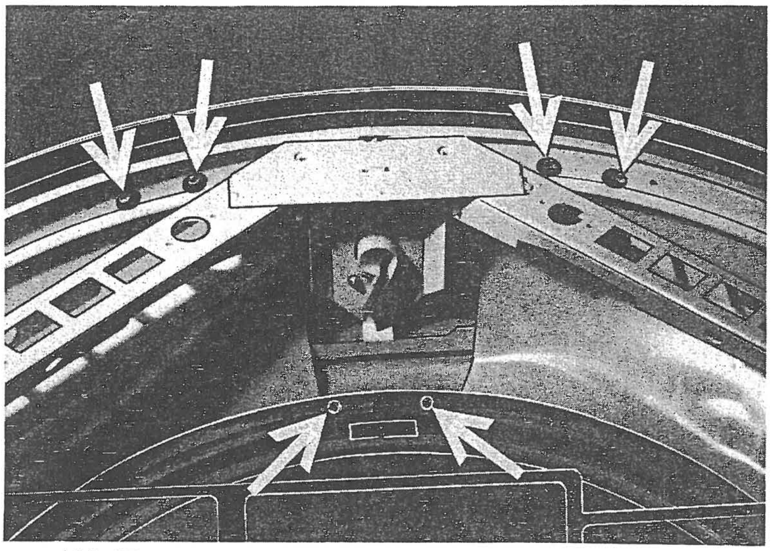


Abb 15

Die Pfeile zeigen die Befestigungsschrauben der oberen Zierstücke.

To remove the two top trims, loosen the four wood screws inside of the u-shaped frame as shown.

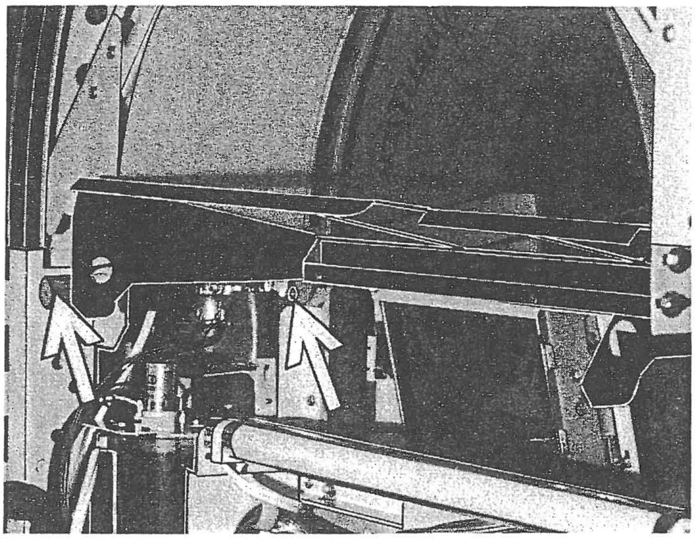


Abb 16

Das in Abb. 13 mit a bezeichnete Zierstück ist mit den hier gezeigten Schrauben befestigt. Die linke befindet sich im Metallrahmen hinter dem Starter.

The trim shown in fig. 13 pos. a, is fixed with the mounted screw and one behind the starter.

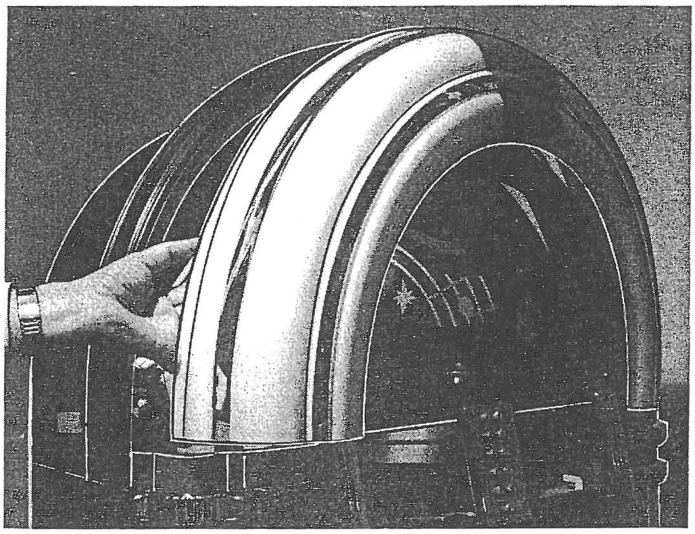


Abb 17

Die farbige Rundblende aus der Türnut ziehen und entfernen.

Take out the coloured plastic trim totally.

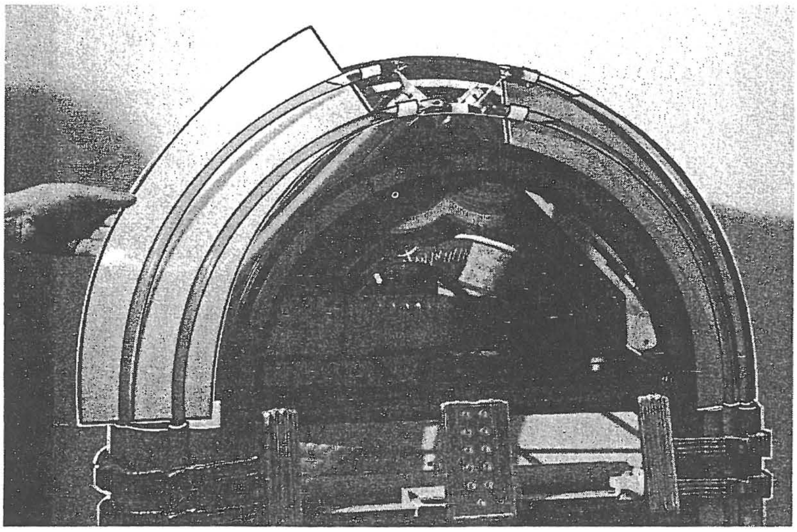


Abb 18

Nach Entfernen der gelben Plastiksegmente können die Befestigungsschellen der "Bubble Tubes" gelöst werden. Röhre nach oben aus der Klemmfassung ziehen.

After removing the yellow diffuser the bubble tubes clips are accessable for loosening the nuts.
Take the tube carefully out of the heater clip.